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ARTICLE I.

LECTURES ON MILITARY SURGERY:

DELIVERED DURING THE SUMMER COURSE OF THE MEDICAL DEPARTMENT OF LIND UNIVERSITY.

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LECTURE FOURTH.

THE SURGEON ON THE FIELD OF BATTLE.

The previous lectures have, of necessity, been confined to the organization and machinery of the Medical Department of the army; but now we come to the more interesting topics of the uses of that organization, and the duties of the surgeon in operating that machinery.

Battles occur under all conceivable forms and circumstances, obliging the surgeons to vary their arrangements for the wounded according to the shifting scenes of the day. As a general rule, however, the following arrangements may be calculated upon in a field fight. The troops are arranged on a line from right to left, with space in the rear for free lateral communication to any part of the force. Somewhere in the rear of the line or lines, thus formed, a reserve force is stationed, ready to support any part of the army that may be too hardly pressed by the enemy.

The surgeon will locate his field hospital, if possible, in some spot out of the probable range of fire, and where it will not be likely to be in the way of movements of troops, especially of cavalry and artillery. Such spots, of course, will be in the rear of the line of battle, at any distance not too great for the ready succor of the wounded. If the formation of the ground permits, a place may be chosen behind the crest of a hill, where the elevation in front will be a safe protection from shot. A yellow flag is put at this place, or near it, as a guide for the wounded and their carriers, also as a notification to the enemy of the situation of the hospital; in order that they may avoid firing upon it. If there is a barn or house in the vicinity, it will be convenient to use it for a hospital, if not, a tent may be pitched, or even the shelter of trees resorted to. There should be a sufficient number of men detailed to the hospital, before the battle, to bring in the wounded as fast as they fall, so that on the one hand the line of battle is not weakened by men leaving their ranks to carry back the wounded, or on the other, the latter do not, by remaining too long unaided in the line, dispirit and alarm the men.

A portion of the surgeons remain at the temporary hospital to receive and attend to the wounded as they are brought in, and another party may in many instances follow close after the line of battle, to give such succor as may be necessary before the men are carried back. Each surgeon is attended by an orderly, who keeps close to him wherever he moves, and carries in a knapsack such instruments and medicines as are likely to be hastily called for. The contents of the knapsack are as follows:

CONTENTS OF HOSPITAL KNAPSACK.

1 quart Castor Oil.
1 lb. Cerati Simplicit.
4 oz. Chloroform, (Squibb's.)
4 oz. Ext. Ipecac.
4 doz. Pills, Cathartic, Comp.
2 " " Mass. Hydr. grs. v.
2 " " Opii.
4 " " " grj, Camph. grsij.
4 " " Quinine Sulph. grs iij.
1 oz. Potass, Iodide.
1 oz. Zinci Sulph., (Squibb's.)
½ oz. Argenti Nitr., fused.
2 oz. Alum, (Squibb's.)
2 yds. Emp. Ichthyocollæ.
2 yds. Emp. Adhesivi.
½ lb. Lint.
2 pieces Sponge.
4 doz. Bandages, assorted.
2 yds. Flannel.
1 Field Tourniquet.

½ oz. Quinine Sulph.	4 Binder's Boards, (4x18 inches,) doubled.
4 oz. Spts. Ether, Comp. (Sqibb's.)	2 Lead Pencils.
4 oz. Spts. Terebinth.	1 quire Note Paper.
4 oz. Tinct. Opii.	1 paper Pins and 1 p'ce Tape.
4 oz. Tinct. Opii, Camph.	

AMBULANCES.

A large part of the wounded are only slightly injured, and are perfectly able to walk without assistance to the field hospital, but those who are at once disabled and fall in the line must either lie on the field till after the battle, or be carried off by the *Ambulance Corps.* The term "ambulance" is sometimes used to designate the whole organization and material of a flying hospital, and at others is restricted simply to the vehicles used for carrying the wounded.

The ambulance wagons are made either for two or four horses, and vary in their capacity. They will accommodate from two to eight patients. They are made with boxes of about the length of ten feet, set on springs, and covered with an oil-cloth to shelter the inmates from the sun and rain. There is a seat or two in front for the driver and for patients who are able to sit up. Behind the seats one or two tiers of berths are provided. These are covered with India rubber cloth that they may not be soiled with the blood, and are made so that they can be drawn out at the hinder extremity of the vehicle, thus the patient can be put in or removed without rising from his couch. In placing the wounded man in the ambulance, a berth is drawn out and placed upon the ground to receive the patient. It is then slid carefully into its place again, precisely like a drawer, with the head of the berth towards the rear end of the ambulance. Between the berths and the end of the vehicle there is a space of about eighteen inches, in which is placed a water cask.

"Ambulance carts" are constructed on similar principles, but with only two wheels. They are often of use in difficult routes, where heavier vehicles cannot proceed. The two-wheeled ambulance is considered best for patients who are very dangerously wounded. The number of these vehicles required in an army is one two wheeled ambulance for every

company, and one four wheeled ambulance in addition, for every five companies.

PANNIERS.

If the route of the command is over a region impassable to wheeled vehicles, the sick and wounded must be carried upon horses or mules. For this purpose, a long, secure saddle is constructed, to either side of which is attached a couch. One of these is made for placing the patient in a horizontal and the other in a sitting posture. In this way the parties are carried over mountain passes, or through forests where only bridle-paths exist.

HORSE-LITTERS.

A more comfortable conveyance for the patient is the "Horse-Litter." This is composed of a canvas bed, attached by the sides to two poles, each sixteen feet long. There are head and foot pieces to keep the poles asunder. The poles are of ash, two and a half inches in diameter. The head and foot pieces have canvas "dashers" rising from them, stretched on strong wire, and serving for head and foot boards to the bed. The width of the canvas is twenty-seven inches, and the length five feet, ten inches. The litter thus constructed, is carried by placing a horse or mule between the poles at either end, and attaching the extremities to a suitable harness resting across the animal's back. The horse-litter is easier for the wounded than the panniers, and is better adapted for narrow forest paths, but it requires more beasts for the service.

HAND-LITTERS OR STRETCHERS.

The United States hand-litters consist of a frame of ash with canvas stretched between. The side poles are eight feet ten inches in length, and an inch and a quarter in thickness. The cross pieces are twenty-nine inches in length, and placed one foot five inches from either end. The projecting poles serve as handles for the carriers. Hand-litters are often extemporized by cutting poles of suitable length and size, and fastening a blanket to them. Another simple litter is constructed by fastening a soldier's overcoat between two muskets.

The guns are passed in through the sleeves, and the front of of the coat is buttoned together so as to make a bed between the guns. If litters are extemporized for carrying men any great distance, cross pieces should always be lashed on to keep the poles apart, otherwise the litter will press against the hips of the carriers, and annoy them intolerably on the march.

MANAGEMENT IN BATTLE.

The heavy ambulance wagons will generally remain either with the baggage train or at such a distance from the line of battle as not to become entangled in the movements of the troops, nor too much endangered by the fire. A sufficient number of men are detailed to carry hand-litters. As fast as men fall in the ranks these carriers place them upon the litters and carry them back to the field hospital, where they are attended by the surgeons detailed for that service. Some, however, are wounded in such a manner as to require instant attention on the spot. To provide for these, a suitable number of surgeons, with their orderlies, will keep near the line, ready to go wherever called, but in general taking care not to expose themselves to more fire than is required by their duties, as the loss of the surgeon on the field disheartens the men.

In sieges, the surgeon can advance into the trenches and dress the wounded on the ground before sending them to the rear.

If a fort is bombarded, the surgeon may find it requisite to place the hospital in a bomb-proof casemate, in order to protect the patients from shells. If a town is besieged, the hospital should be located, if possible, out of the line of the heaviest fire, and its situation pointed out to the enemy by a hospital flag.

Great care should be taken by the surgeon to provide for a full supply of water during the battle. Not only is this required for dressing and cleansing wounds, but also still more urgently for drink for the wounded. The loss of blood occasions a most agonizing thirst, which is frequently aggravated by the heat of the weather, and by the fact that the soldier may have fought for many hours already, without an

opportunity to replenish his canteen. From these causes it happens that often the great cry of the wounded is for water —*water*. The men who carry the litters should keep their canteens constantly filled, and the field hospital itself should be fully provided for, either from springs, streams, or from casks previously brought to the spot and filled. The chief surgeon of the corps—called the Medical Director—assigns his subordinates to their several posts, and takes his own position at the field hospital, or "Ambulance Depot," as it is called. If the progress of the enemy endangers the safety of the Depot, the Quartermaster should send additional guards, or remove it to a safer position, according as the commanding officer may direct.

INSTRUMENTS.

In Military Surgery some instrumental conveniences must be dispensed with for the sake of portability and simplicity. The following lists contain the instruments furnished by the government to each surgeon and assistant:

MISCELLANEOUS.

1 Sponge-holder, for the throat (Buck's.)
8 Cupping Glasses.
8 Tin Cups, for the same purpose.
6 Thumb Lancets (in cases.)
1 Spring Lancet.
1 Set of Pocket Instruments.
12 Whalebone Probangs.
4 Scarificators.
1 Set of Splints (major) Welch's.
1 Stomach Pump and case.
4 Enema Syringes, of which
1 Davidson's,
1 Hard Rubber, 6 oz.
8 Glass Penis Syringes.
8 India-rubber Penis Syringes.
1 Set of Teeth Extracting Instruments.
1 Tongue Depressor (on a hinge.)
8 Field Tourniquets.
2 Spiral Tourniquets (Petit's.)
6 Hernia Trusses.

AMPUTATING.

1 Capital Saw.
1 Metacarpal Saw.
1 Capital Amputating Knife.
1 Medium " "
1 Small " "
1 Large Catlin.
1 Small "
1 Scalpel.
1 Tenaculum.
1 Artery Needle.
1 Artery Forceps.
1 Bone Forceps.
1 Spiral Tourniquet.
12 Surgeon's Needles.
1 Mahogany Case, brass bound.
1 Gutta Percha Pouch.

TREPHINING.

2 Trephines.
1 Scalpel, with Raspitor.
1 Hey's Saw.
1 Elevator.
1 Brush.
1 Mahogany Case, brass bound.

EXSECTING.

1 Bone Forceps (Liston's.)
2 " " sharp, assorted.
1 " " for sequestra.
1 Chain Saw.
1 Chisel.
1 Gouge.
1 Lenticular Knife.
2 Spatulas, protecting.
1 Trephine, small crown.
1 Ecraseur.
1 Mahogany Case, brass bound.
1 Gutta Percha Pouch.

GENERAL OPERATING.

1 Metacarpal Saw.
1 Trocar.
1 Ball Forceps.
1 Gullet "
1 Artery "
1 Dressing "
2 Scissors, straight and curved.
1 Artery Needle, with 4 points.
12 Surgeon's Needles.
1 Tourniquet.
1 Small Amputating Knife.
1 " Catlin.
3 Bistouries.
1 Hernia Knife.
3 Scalpels.
1 Cataract Knife.
1 " Needle.
1 Tenaculum.
1 Double Hook.
6 Steel Bougies, silvered, double curve, Nos. 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, 11, 12.
6 Wax Bougies, Nos. 2, 4, 6, 8, 10.
3 Silver Catheters, Nos. 8, 6, 9.
6 Gum-elastic Catheters, Nos. 1, 3, 5, 7, 9, 11.
2 Mahogany Cases, brass bound.
1 Gutta Percha Pouch.

POCKET.

1 Large Scalpel.
1 Small "
1 Artery Forceps.
1 Bull-dog Forceps.
1 Curved "
1 Dressing "
1 Needle.
1 Sharp-pointed Bistoury.
1 Probe-pointed "
1 Long Probe-pointed Bistoury.
1 Straight Scissors.
1 Knee "
1 Flat-curved Scissors.
1 Gum Lancet.
1 Tenaculum.
1 Tenotomy Knife.
1 Abscess Lancet.
1 Exploring Needle.
1 Exploring Trocar.
1 Seton Needle.
1 Spatula.
2 Probes.
1 Director.
1 Double Canula.
1 Comp'd Silver Catheter.
6 Surgeon's Needles.
1 Artery Needle.
1 Morocco Case.

These remain in the hands of the medical officer so long as he continues in the service, but he is required to give them up on leaving.

Bandages should be made of the same material as in civil surgery, and should be rolled hard and put up in assorted packages of seven dozen each. Each package may be made up of the following sizes:

1	dozen	1	inch	wide,	1	yard	long.
2	"	2	"	"	3	"	"
2	"	2½	"	"	3	"	"
1	"	3	"	"	4	"	"
½	"	3½	"	"	5	"	"
½	"	4	"	"	6	"	"

Each roll should have its length and width marked upon it. The lint used in the service consists of scraped, ravelled and patent lint, cotton batting and wadding, and fine tow or beaten flax. The other furniture, dressings and medicines of the hospital are drawn according to certain established rules, and care is taken that every article be good and reliable.

GUN-SHOT WOUNDS.

The projectiles which cause gun-shot wounds, present a great variety, and require a brief description.

The Musket and Rifle Ball.—These are either round or conical. The old spherical ball weighed about one ounce, and in preparing the cartridge three buck-shot were enclosed with it. The minie, or conical bullets of modern warfare, are intended for shooting in rifled barrels. They are elongated, coming to a blunt point in front, and having a funnel-shaped hollow at the base. Hence, the heaviest weight being in front, the bullet flies head on without upsetting, the lightened base acting on the air exactly as does the feather of an arrow. Another and still more important use of the hollow base, is that the expansion of the powder expands it, pressing the lead into the rifle grooves, and at once securing the rotation of the ball, and preventing the leakage of gas, called windage. From these various reasons the elongated balls fly with much greater accuracy and force than the spherical, and as we shall see hereafter, make more deadly and destructive wounds.

Cannon Shot.—These are either round or elongated as in the musket. They are also solid or hollow—the latter being called shells. The shells are intended to burst when they strike, and destroy life by the scattering of their fragments. Small shells are thrown by hand, and called hand-grenades. In artillery, canister and grape shot are also used. They consist of a number of small balls in one cartridge, which are all fired together, like the shot from a fowling piece. They are intended for close action. Solid shot often throw splinters of wood and fragments of stone from the objects which they strike, which thus become projectiles, producing distructive results.

CHARACTERISTICS OF GUN-SHOT WOUNDS.

Powder Marks.—When a musket or other firearm is fired within a very short distance of the person, there is produced a blackened area of some inches in diameter, surrounding the bullet wound. This area is formed by unburned grains of powder and particles of carbon, which are projected like minute shot against the skin, and oftentimes imbed themselves within it. Thus lodged, the saltpetre and the sulphur are gradually dissolved and absorbed, while the carbon being insoluble, remains dispersed among the fibres of the dermis. Being too small and unirritating to cause suppuration, and thus procure their own release, they remain as permanent black spots on the skin, often greatly disfiguring the person. The proper remedy in this case, is to proceed patiently and thoroughly to extract each grain with some sharp instrument, as the point of a penknife. It has been recommended to apply corrosive sublimate to the skin, in sufficient strength to cause a superficial scab, which, when it falls off, will bring away the grains of powder entangled in it. I have not tried this, but I should fear the production of an ugly scar, unless great care were taken.

Bullet Wounds.—Where a bullet enters, it generally leaves a small, depressed, circular opening, of considerably less diameter than the projectile which made it. A small circular piece of skin is sometimes driven in before the ball. If the ball passes through the body, there is generally a difference

in the appearance of the two orifices; for, while the place of entry shows a small, depressed and circular wound, the point of exit displays a larger opening, with more ragged and everted edges. The skin, at the latter place, seems often to open in a straight line, making a sort of button-hole wound. Often, several wounds may be made by the same shot, as, for instance, where it passes through both arms and the intervening chest. One of our soldiers at Cairo was accidentally shot in such a way that the same ball passed through both thighs and his head. This curious result, was owing to his being in a bent position at the time of receiving the discharge, —his head being down beside the thigh. The curious course of bullets in the human body, has long been a topic of remark. The old-fashioned round bullet, especially, when its force is nearly spent, is liable to be deflected from its direct line by every bone, tendon, or fascia, against which it impinges. Balls striking the chest, will sometimes glance from a rib and run half around the body, between the deep and superficial fascia, and make an exit opposite the point of entrance, presenting to the eye the appearance of having gone straight through the chest. The loose tisue of the interfascial space, affords so little resistance that it becomes the favorite track of balls, of which fact, great numbers of remarkable examples present themselves to military surgeons. One soldier was struck upon the larynx by a spent ball, which traversed completely around the neck, beneath the integument, and was found lying in the orifice where it entered. Another received a ball on the outer side of the right arm. Getting into the interfascial space, the projectile ran up the arm, around the bulge of the shoulder, obliquely down the back, and was cut out under the skin of the left thigh. Hence, it is obvious that the direction which a ball had, on entering the body, is no indication of its course. These remarks apply to the old round bullets, but the modern conical balls are much less eccentric in their route. As a general rule, they pass completely through the body, in a straight course, crushing bones, piercing fasciæ, and making very destructive wounds. The hæmorrhage in these, as in most other gun-shot wounds, is generally

slight, but in a few instances, where a large vessel is cut, it is profuse and fatal. In striking the shafts of long bones, the bullet either glances off, or shatters the bone. In perforating the skull, or other flat bones, it makes a round opening, smaller on the side of entry and larger at the exit. The track of the ball is often more or less occupied with foreign bodies. Pieces of clothing, buttons, fragments of skin, and pieces of bone, are among the objects found. A thin layer of flesh, along the course of the wound, is usually pulpified and rendered gangrenous, hence, the wound rarely unites otherwise than by suppuration and granulation.

The wounds produced by cannon shot, are of course larger and more frightful than those of bullets. If they strike a limb, they tear it off, or, if they impinge upon any other part of the body, they make an equally terrific destruction. There is a peculiar class of injuries from cannon balls which has been called the wind-contusion. In these cases the skin is not broken, but the parts beneath are crushed, and in some instances, reduced to a complete pulp, even the bones being broken to fragments. The uninjured state of the skin rendered it difficult to conceive that there had been an actual contact of the shot, and hence sprung up the notion that the bruise was caused by the "wind of the ball." Recent experiments have shown that the wind of the ball is not capable of producing the slightest injury, and at the present time the wind contusion is believed to be due to the oblique stroke of a spent cannon ball, which having ricocheted along the ground, has acquired a rotary motion, and, in a manner, *rolls* across the person, crushing but not tearing.

Shells, grenades and rockets produce wounds by the fragments and the enclosed missiles thrown out in bursting. In general, they are comparable to musket shots, except that the fragments of shell being larger and more angular in their form, the laceration is more extensive.

The shock following a gun-shot wound is severe, being about equal, when large limbs are struck, to the depression following railroad accidents. The sensation produced by a bullet wound, is similar to that of receiving a smart blow

with a cane, while the smart from smaller projectiles, such as buckshot, is compared by soldiers to that of the sting of a bee.

EXAMINATION OF THE WOUNDS.

In gun-shot, as in other wounds, the aspect of the patient gives much valuable information. The amount of fright and complaint is no indication of severe injury. Some soldiers will run to the rear, bellowing lustily, from the slightest scratch, while others remain silent under mortal wounds; but the general appearance of collapse in the countenance, indicates injury of important organs, while the absence of it shows that the bullet, though striking the chest, the abdomen, or the head, has passed by without touching any vital part.

In examining these cases, after noticing the amount of shock, attention should be turned to the hæmorrhage, if any exists, and lastly, to the course and situation of the ball, and the presence of foreign bodies. The course of the ball is often quite perplexing. The finger is a proper means of examining it at the orifice, but for deeper exploration a probe is required. Ordinary probes are often sufficient, but it will be necessary to have also a longer one, armed with a little ball at the extremity. With this, as full an investigation may be made as the nature of the case permits. At the same time, the presence of foreign bodies may be determined. If the track of the ball is too long or circuitous to be easily followed, the patient should not be tortured by excessive and wearisome probings. Frequently the ball will be found on the opposite side of the body, where it may be felt as a small hard tumor under the skin. The question of whether the lung is injured or not, is one of considerable importance in certain cases. This will be decided by ascertaining whether the air escapes more freely from the wound than it should from the mere influx and efflux from a wounded pleura, and also by noticing whether the patient expectorates any blood. Notice should be taken also, in cases of wounded lungs, whether the bullet passed quite through, or lodged in the substance of the organ. More patients survive who are shot completely through the chest, than of those in whom balls stop in the lung. Many patients

recover from wounds penetrating the chest, while very few survive the passage of bullets through the abdomen. Gunshot wounds of the brain are almost uniformly fatal, although there are a few astounding recoveries on record.

Having thoroughly examined the patient, the surgeon will proceed to the treatment, which will be the subject of the next lecture.

ARTICLE II.

PROLAPSUS UTERI WITH ULCERATION.

A Paper by DANIEL D. WAITE, M. D., Chicago, Illinois.

Read before the CHICAGO MEDICAL SOCIETY, June, 1861.

Do not suppose that I intend to make an essay upon this subject. I intend no such thing. All that I propose at this time is, to relate a case that I deem of some interest, which lately came under my notice, accompanied with some preliminary remarks, and such reflections and practical observations as would naturally arise from the case.

Under the term prolapsus, I think should be included all descent of the uterus of sufficient extent to demand the attention of the physician. Relaxation or weakness, prolapsus or procedintia, according to the books, are but so many degrees of descent; and these stages of the difficulty may be divided into three, six, or a dozen, according to the ingenuity of him who undertakes the task. But it is doubtful if they serve any useful purpose, as the remedy to be applied obviously depends upon the stage of the prolapsus, without reference to a name, and this must be learned in all cases by actual examination.

Probably the remark will be sustained by facts, that of all chronic derangements of the womb, prolapsus is the most common. It is probable that not one case in ten of those that become troublesome, can come to the actual knowledge of the physician. We had almost said that one-half of the child-bearing women of the country are in the habit of utter-

ing such complaints, as would justify the conclusion that the womb was not in its normal position. The cause of this great prevalence of the complaint in this country, beyond that of most nations, has been, and still is, a subject of interesting enquiry, but cannot be examined on this occasion.

The physiological changes upon which prolapsus depends, have been a subject of much dispute. While some contend that the principal changes, or proximate causes, are weakness, relaxation and stretching of the ligaments, others as earnestly contend that the ligaments do not figure in the case at all. Even our own Dewees, doubted if the ligaments had anything to do in sustaining the womb in place. Following out this idea, we should appear to be led to the logician's *reductio ad absurdum;* for no other use can be assigned the ligaments; and if they do not aid in sustaining the womb, they must have been formed for no purpose—which is absurd. Is a machine, so wonderfully and exquisitely wrought as the human system, made up, in part, of useless appendages? Doubtless, in my mind, the ligaments contribute, in conjunction with other parts, in keeping the womb *in situ.* But when the other sustaining parts give way, the ligaments, not being sufficient in themselves, also give way, and allow the womb to descend by their extension. While I concede that the vagina, the bladder, the rectum, and the muscles of the pelvis, all aid in bearing up the womb, I am nevertheless of the opinion that the perineum is the great sustaining part, constituting, as it does, the base of the pelvis.

The case I am about to relate, would seem to sustain this opinion. About eighteen months ago, I was consulted in relation to a falling of the womb, by a lady of fifty-five, naturally strong, robust and healthy, and accustomed to moderate or ordinary labor. I learned from her history, that for the last eight or ten years she had been troubled with a pressure of the womb downwards. The difficulty had been constantly increasing, till within the last three months she had been unable to be on her feet more than an hour or two at a time without having the organ come entirely into the world, as she expressed it; and that she was in the habit, though in great distress in

her back and loins, of travelling miles about the city in that condition. Although I knew that parallel cases existed in the books, yet never in my life having seen as bad a case as she represented her's to be, I confess I was somewhat incredulous, supposing there must be some mistake about the case; but upon examination I found it to have been truly stated. The whole organ, about once and a half its natural size, or that much larger than an ordinary sized womb, was entirely outside the body, and on a line with the same, except that the os was drawn a little back, or towards the perineum. (This has always been its position when without the body.) Although perfectly procidented, it was held firmly up to the vulva, and it was a little difficult to pass the finger over the fundus. Except the enlargement, and a slightly purple hue, the uterus appeared healthy. It was so easily replaced that I was suspicious the external orifice had been injured. I enquired if the external parts had ever been lacerated; she answered no; but upon reflection, said she was told the parts were injured at the birth of her first child, in early life; but that she supposed they had been healed. She had borne two children. Considering the case a formidable one, Professor Byford was called in consultation. Upon further examination, we ascertained that the perineum had been narrowed to about one-half its natural breadth. The vagina was obviously very much enlarged, which I attributed mainly to its expansion by the enclosed womb which, it so long carried in a probably enlarged condition. But here the question arises,—did the relaxed vagina allow the descent of the uterus, existing prior to the descent, or was its relaxation caused by the continued pressure of the organ upon its parietes? There are no data upon which a confident opinion can be given, but I strongly incline to the latter supposition. If we consider the purposes which the vagina is destined to fulfill; its great capacity for expansion, and its frail structure, I think we may arrive at the conclusion that it does not *per se* afford much sustaining power to the womb, only as it fills a certain space between the womb and the perineum, upon which it itself rests. In numerous cases, the womb will be found prolapsed into the vagina, and

resting upon the perineum. This has been a common occurrence in my own practice, from which I must in a great measure draw my conclusions; and I presume, from what I have learned, that it is not uncommon anywhere. But it seems that the perineum and sphincter vagina, will, in ordinary cases, long sustain the womb without allowing it to protrude. In the case under consideration, the woman had tried a variety of pessaries, without much benefit, as the pendant womb would soon press them out, and for the very plain reason that they had no sufficient floor to rest upon.

Professor Byford recommended the India rubber inflation pessary, which was procured. But this, although inflated to the size of a man's fist, would, after a short time upon the feet, be forced through the os externum. The Doctor carefully measured the womb, outside and in, from which measurement the conclusion as to its engorgement and enlargement was arrived at. With the advice of close and firm bandaging, we left her, in the belief that the case was probably incurable, except by an operation that would diminish the size and capacity of the vagina. This she was not inclined to submit to at the time, nor, indeed, were we prepared strongly to advise it. I saw her frequently during the ensuing year, trying to keep house, and, of course, much upon her feet, carrying the womb a large share of the time, when not in bed, between the thighs. It is proper to say, that she had an almost constant leaking of the urine, which soon wet the bandages and clothing, rendering them not only uncomfortable, but offensive. She always said she got along very badly, but as well as she could. She said she sometimes felt as though she should "drop down in her tracks," such was the distress in her back and loins, and occasionally across her body. She is naturally a woman of great fortitude and courage, but now becoming nervous and irritable.

Three months ago, she applied again. She said she was much worse; and could not live so any longer. She said blood and matter in considerable quantities were constantly discharged; that she was getting very weak, and that it hurt her very much to put up the womb. Examining, I found the

mouth of the womb extensively ulcerated, and the whole organ irritated and more enlarged. One side of the os, including nearly one-half of the ring, was entirely eaten away, the ulcer extending inwardly as far as could be seen, and outward and upward more than an inch. From several other points at and near the os, and from the inside, matter exuded on pressure. If "seeing is believing," in this case seeing was knowing. No imperfect speculum knowledge was needed. Here we had the naked fact; and naked enough too. After thoroughly washing the parts, I applied the hard lunar caustic to the ulcerated portions, burning it severely, and passing it slightly over the lower half of the organ. This I repeated every other day, for five or six times. Still on discontinuing the application a week, the ulcers resumed nearly the same appearance, and all the while discharging largely a thin, greenish-white matter. Somewhat discouraged, and fearing from the irregular and somewhat jagged appearance, some specific tendency in the ulcers, Dr. O. Smith was consulted. On examination, the Dr. although somewhat suspicious of the ulcers, thought they might probably be cured, and for that purpose, recommended a strong solution of the per-sulphate of iron. This application I used for about a week, producing a favorable appearance, but not seeming to have a sovereign effect. Ascertaining that I could not obtain a strong tincture of this article, I obtained, at the suggestion of the apothecary, a concentrated tincture of the per-chloride of iron. This, from Reed's, was rather more escharotic than desirable, and was reduced by one-half water. This application with a large camel's hair pencil, turned the parts a light yellow, and seemed to act as a powerful astringent, rendering the muscle hard and firm to the touch. After being applied every other day, thoroughly, for five or six times, the discharges ceased. The application was continued in this way about two weeks, the ulcers being then about half healed, and the womb firmer and smaller. The action of the chloride was not confined to the ulcerated portions, but passed freely over a large share of the body of the womb. From the period of my commencing with the ulcers, the iodide of potassium had been exhibited in

pretty free doses, which, by the advice of Dr. Smith, was carried as high as forty grains per day. Three weeks after the last application, I found the parts entirely healed, the womb looking healthy, and, as near as I could judge, of the natural size.

Ashwell says: "The womb may be irritated into ulceration by pessaries and other local causes." And he adds, "this may occur with much bleeding in case of entire procidence. We all know the varying depth and extent of such ulcers, and how extremely difficult they are to heal." It seems pretty clear that in this case the womb had been goaded into ulceration by the friction of external irritants.

It may be worthy of notice that no application to the uterus produced any pain, or apparent sensation, unless carried within the os. Even when thoroughly burned with the nitrate of silver not the least complaint was made. A solution of the nitrate, or the tincture carried a little within the neck, produced an immediate start, followed by pain in the back.

A *T* bandage, protected by oiled silk, is now worn, and the womb in this way is kept within the vulva, except as it will occasionally slip out. Since the reduction of its size, it seems much easier to keep it within the body. And I think the tincture has had an astringent effect upon the vagina, and perhaps upon the ligaments. Certain it is that the womb is more easily retained inside now than formerly. She is quite thankful for her more comfortable condition, and unless she gets worse, will not be likely to submit to an operation, if advised.

Query: What further can be done for this woman? Is the operation of excising a portion of the vagina safe and advisable?

Perhaps I should say that I have vainly endeavored to confine this patient to a horizontal position while a cure was attempted. For a few days, while at the worst, she was on her couch, say one half of the time. But at the present time, one month after the cure of the uterus, she is keeping an apple and candy shop, and although complaining severely of

her back and hips, she is almost continually on her feet, except during the usual hours of rest.

ADDENDA.—The above communication was read before the Chicago Medical Society on the third Friday in June. Two weeks after this date I was again consulted; the woman saying that there was again some discharge of blood and matter. On examination, I found a small ulcer on the location of the former one, and some blood escaping from the os. The os was also somewhat swollen from irritation. Three or four applications of the per-chloride healed it perfectly, and stopped the discharge of blood. The womb now again appears healthy, and does not as readily escape from the body.

D. D. W.

CHICAGO, July 9, 1861.

ARTICLE III.

SPINA BIFIDA.—BY VINDEX.

TO THE EDITORS OF THE CHICAGO MEDICAL EXAMINER.

GENTLEMEN:—A perusal of the periodical literature of our profession cannot fail occasionally to impress the reader with the great anxiety some manifest to secure a niche in the temple of Fame, be it never so humble, provided they can thus enjoy a transient glance from their fellows, or perhaps even reach a fleeting and ephemeral notoriety.

This longing for distinction exhibits itself in various ways. At times it is seen in the modification of instruments, often termed "improvement" of such, when the very reverse, through the ingenuity of the inventor, is effected. Then, again, we have "improved" modes of operation, wherein some unimportant innovation is proposed. Or, it may be, that a master-mind has suggested a relation between a particular remedy and a disease; the suggestion, in itself, involving all the originality of discovery, and all the merit of subsequent development. Still, as we know, science is slow in coming to maturity, and time may be required for a full un-

folding of the germ in the perfection of ultimate practical ntility. In the interval, however, some aspirants after fame will be occasionally found endeavoring to anticipate the subsequent efforts of the author, who, having supplied them with a clew, has thus facilitated their task. But not content with quartering their own empty performances with his substantial merit, they will not hesitate to thrust themselves prominently forward, and by this *modest* intervention, try to eclipse his well-earned fame. These reflections have been suggested by a glance at the Report, made by the Chairman of the Committee of Surgery, presented at the Tenth Annual Meeting of the Illinois State Medical Society. Section xviii. of this "Report" relates to the treatment of spina bifida by injection of iodine. The reporter tells us that this operation was first proposed and performed in Chicago, May 3, 1848. In the Report we are not directly informed by whom it was, at that time, proposed and performed; but from its scattered and fragmentary materials we are permitted indirectly to gather the claim of the reporter himself to originality of planning and priority of performing the operation in question. Now, I am not disposed to recognize either claim. So far back as 1836, Velpeau employed iodine as an injection in hydrocele with such success as to extend its application to *various serous cysts.* In his "Operative Medicine," published in 1839, he suggested it might, without danger, be even thrown into the peritoneal cavity; and in 1840, he thus injected the knee joint. In injecting such a tumour as that of spina bifida, no one supposes that he deals with anything more than a serous cyst, as far, at least, as the action of the iodine on its surface is concerned. He does not imagine he thus remedies an organic affection of the nervous tissue, that may be at the time associated with it. If the disease be accompanied by this morbid condition it is not susceptible of remedy from any plan of treatment; if otherwise, it is to be considered a serous cyst, and to be treated as such. The humblest intellect might conclude that similarity of structure and of diseased action necessarily indicate the suitableness of similar therapeutic means. In fact, as Velpeau himself remarks, injection succeeds best

in proportion as the cavity more nearly approaches a simple serous one. Thus, in cysts of the neck, where the membrane containing the fluid is everywhere surrounded by soft tissues, the operation never fails. It is to Velpeau, then, that science is indebted for suggesting this mode of treatment in serous cysts, and their allied diseases. The conception was the fruit of his understanding, and of his only. That the reporter's claim to having first performed the operation is not recognized in France by the profession, the affirmative of which we might be induced to infer by reading the *Chicago Medical Journal*, I beg to refer your readers to a review of the *Bulletin de Thérapeutique*, by the editor of the *Gazette Médicale* of April, 1854.* The reviewer there tells us distinctly that Velpeau was the first who performed the operation of injecting the sac of spina bifida. On the same occasion he notices Chassaignac's case, to which allusion is made in the report before me. Now, if the claim of the writer of the report had been allowed in France, is it probable that the accomplished editor of the *Gazette Médicale* would have told us that Chassaignac's was the second example of spina bifida treated by injection of iodine, and that Velpeau's was the first? It was my intention to confine myself to the report and not (to use a legal phrase) "travel out of the record," had not the reporter referred us to the *Chicago Medical Journal* for Sept., 1859. Now, in the same number of this journal I observe, what appears to me, another inaccuracy. The writer informs us that Mott's case of spina bifida, cured by excision, was "probably not connected with the spine." Mott cured two cases by exsection, in one of which he distinctly tells us, that in extirpating the tumour, "a communication of about the size of a crow-quill was found leading into the cavity of the spinal marrow."†

The reporter favors us with some rules to guide us in the operation, the most of which have reference to the selection of a suitable point for the insertion of the trochar, and the restricting of the amount of serum evacuated, to a correspond-

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* *Vide Gazette Medicale.* April 15, 1854. p. 220.

† *Vide* Velpeau's "New Elements of Operative Surgery," with notes, &c., by Val. Mott. Vol. iii., p. 810.

ing quantity of the fluid to be injected. He then adds: "in the cases operated on by Chassaignac, Nelaton and Velpeau these precautions were not taken." How does the reporter know that these precautions were not taken by Chassaignac and Velpeau? He acknowledges, in the *Chicago Medical Journal* for Sept., 1859, that he had not seen any published observations of Velpeau's case, and it may therefore be presumed he was unacquainted with the details. As to Chassaignac's case, it lies before me, and I see nothing in it to warrant such an observation. Both were successful. Does the writer mean it should be inferred that, owing to the want of proper precautions, they were not? If this be not his meaning, I cannot avoid remarking, the sentence is most infelicitously expressed.

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CHICAGO, JULY 20, 1861.

ARTICLE IV.

AN EXPERIMENT WITH KEROSOLENE—A NEW ANÆSTHETIC.

By E. ANDREWS, M. D., Prof. of Surgery in Lind University.

This fluid is a hydrocarbon of the series obtained by distillation of bituminous coal. It appears to be the most volatile of its class, having less specific gravity than ether, and seeming to be about equally volatile. The odor is but slight, and in kind resembles that of other coal oils. Dr. Bigelow, of Boston, states that it is "as tasteless as water," but this is an error, as it has a distinct, though not strong, flavor. On the whole it is much less pungent, both to taste and smell, than chloroform and ether.

It has been my opinion for some years that all the volatile hydrocarbons were anæsthetics, including coal gas, which latter I have proved by experiment.

The anæsthetic qualities of kerosolene were first observed in a kerosene factory, where it was noticed that men who were sent down into the vats became narcotized by the inhaled vapor, and on removal to fresh air recovered without

injury. As the kerosolene is the most volatile of the compounds present in these oils, it was presumed to be the chief anæsthetic agent present, and was selected for experiment.

On the 19th of July, Dr. Dickinson, of St. Louis, called upon me and presented a can of the fluid, with a request that it might be tested. As there happened to be present at the moment a patient of the Chicago Dispensary, to be sounded for stone in the bladder, I determined to try the article at once. Accordingly, the patient was laid upon a sofa, and at my request, Dr. Dickinson commenced the administration. It was given by sprinkling upon a handkerchief in the same manner as chloroform, taking care to secure an abundant access of air. The patient seemed to take it with ease and comfort, and for several minutes everything went on well. The pulse was full, and somewhat accelerated, but it did not intermit or flag in any part of the procedure. At length the anæsthesia began to come on, when the countenance appeared flushed, and the eye a little unnaturally open and staring. In a short time the patient made an effort to rise up in a sitting posture, and was immediately attacked with moderate convulsions. The administration was discontinued until these effects subsided, and then carefully resumed, but the result was another attack of the convulsions. Again, suspending the inhalation until the muscular excitement ceased, a third effort was made to proceed, but this was also checked by a third attack of the spasms. Great as was my desire to test the article, I did not deem it prudent to persist in the face of such warnings, therefore laying aside the kerosolene, the anæsthesia was finished with a mixture of ether and chloroform. No further convulsive motions occurred. Both the pulse and the respiration were well sustained during the inhalation of the kerosolene, the only exception being that during the convulsions a moderate check of respiratory movement occurred, in consequence of the rigid contraction of the muscles of the chest. The result was a momentary dusky redness of the face at each convulsion, similar to that which occurs in epilepsy.

On the whole, the symptoms were alarming but not disas-

trous. If this shall be found a frequent result, it will effectually exclude the article from use.

Dr. H. J. Bigelow, of Boston, has experimented once upon himself, and four times upon others, with this fluid. In his own case its action was all that could be desired, but in all the other instances unpleasant effects occurred, such as failure of respiration, intermittent pulse, and muscular rigidity. I make an extract from his communication to the Boston *Medical and Surgical Journal:*

This fluid presents remarkable properties. It is tasteless as water, volatile and inflammable as ether, though burning with a dense white light; of a faint chloroform odor, which, as it evaporates, changes to that of coal tar, and then disappears absolutely and altogether; so that a handkerchief, saturated with the fluid has, at the end of a few minutes, when dry, no odor at all, nor has the room or atmosphere where it has been used, any trace of its presence. Both ether and chloroform leave, in different degrees, a persistent, *fadé* and stale aroma after evaporation, as is well known. They are also far less agreeable to inhale than this new agent, which has thus an obvious advantage over either of them.

A few whiffs were sufficient assurance of its efficacy as an anæsthetic, which, with its other qualities, as I ventured to remark, would place the kerosolene beyond any known anæsthetic, provided its use was not followed by headache, vertigo or other unpleasant symptoms, and provided it should prove as free from danger as ether.

Subsequently, I inhaled the new vapor, which Dr. Hodges, at my request, administered. Complete insensibility supervened, lasting several minutes, with some diminution of the volume of the pulse. Its effect was wholly agreeable, leaving neither headache nor nausea, nor bad taste.

I have this morning administered it to three surgical patients. The first, a girl of 19, presenting some hysteric tendencies, having thrust some twenty needles in her leg, was wholly insensible during the extraction of four of those which remained. Yet there was more cough than I had expected from the wholly unirritating odor of the vapor, more muscular rigor than usual in favorable anæsthesia, and more intermittence of the pulse.

In a second patient, to whom it was given preparatory to an operation upon the face, insensibility was equally complete. But this woman did not take it kindly, and its complete effect was attended by so feeble and intermittent a

pulse as to lead me to desist until she had recovered. A second attempt reproduced, with anæsthesia, the feeble and intermittent pulse, and I again desisted. Upon her recovery, I gave her common ether vapor, which she afterwards said was less agreeable, but which was followed by complete insensibility, the pulse beating steadily and full, at 76. Though this patient perhaps succumbed more readily to a third anæsthesia, there seemed to be in the two first trials a certain degree of purple color and asphyxia, with its attendant spasm, which I have elsewhere described as an occasional and disagreeable symptom of anæsthesia. To guard against this asphyxia, which might possibly have resulted from the folded towel, upon which I habitually administer ether, I tried in the next case an open sponge. The subject required a considerable incision for a mammary abscess, and was a patient of Dr. H. G. Clark, with whose assent I tried the kerosolene. In spite of the open sponge, the symptoms of asphyxia again appeared, suggesting to Dr. Clark before operating, their resemblance to those resulting from charcoal gas. The color was livid, and the rigidity marked. In each of these cases, the quantity used was from one to two ounces.

In conclusion, it may be remarked of these three cases, that they are insufficient for satisfactory demonstration, and that their common and unfavorable symptoms may well have been but a coincidence; yet they suggest some caution in the use of the kerosolene vapor. It is probably more potent than that of ether, requires a free admixture of air, and may produce upon the system some impression or influence, other than that of the mere intoxication attendant upon the use of ether. In awaiting further evidence, it may be considered established that kerosolene is an anæsthetic of undoubted efficiency, and that it possesses certain remarkable and attractive properties peculiar to itself.

ARTICLE V.

FRACTURES OF THE SPINE.

At the last regular meeting of the Chicago Medical Society, Dr. Amerman presented two specimens of fractures of vertebræ, with the following histories:

Case I. Henry Aurz, aged 27, born in Germany; by occupation a lumberman; of good health and temperate habits.

On the 16th of March, 1861, whilst engaged in log-rolling, his foot slipped, and he fell in such a manner that several logs rolled on him, bending his body forward. He was immediately deprived of motion and sensation in his lower limbs. April 1st, fifteen days after the occurrence of the injury, he was admitted into the Chicago City Hospital. At the time of his admission the paralysis was complete. The urine and fæces were passed involuntarily. On examining the spine, an irregularity was readily perceived in the lower dorsal region, but no crepitus. There was also some pain on pressure, otherwise the parts appeared natural. A small bed-sore existed over the sacrum, produced previous to his removal to the hospital. The urine was thick, and deposited a heavy sediment of mucus, pus and salts. Pulse ranged from 100 to 120; appetite good; no pain; and patient rested well at night.

The treatment consisted in placing the patient in the most favorable position to guard against pressure and the occurrence of bed sores, and paying the strictest attention to cleanliness. In addition he was given good diet, quin et ferri, and emulcent drinks. He died April 12, twenty-seven days after the receipt of the injury. Autopsy held day after death. The soft parts were healthy, except just around the seat of the injury, where there were some ecchymosed spots. The injuries done to the vertebræ were confined to the eleventh and twelfth dorsal. The only injury to the eleventh was fracture of the right transverse process, at its junction with the lamina and pedicle. The injury of the twelfth consisted of a fracture of the body near its upper surface, extending on the left side through the pedicle, between the superior articular and transverse processes, thus allowing the eleventh to project forward and compress the cord. The left transverse process was also entirely broken off and lost in preparing the specimen. The cord was uninjured.

Case II. John Donnally, aged 28; by occupation a carpenter; general health good; habits temperate. On the 10th of March, 1861, a large piece of timber struck him a severe blow in the back, and he fell about twelve feet. He was im-

mediately paralyzed in his lower extremities. On the 24th of April, six weeks after the injury, he was brought to the Chicago City Hospital. At the time of his admission there was complete loss of sensation and motion of the lower half of the body with involuntary discharge of the urine and fæces, and an immense sloughing bed-sore over the sacrum. The treatment consisted in removing pressure as much as possible, keeping the patient clean, allowing full diet, and other measures of a supporting character. He died May 24th, one month after admission into the Hospital, and eleven weeks after the receipt of the injury. Autopsy day after death. No injury of external soft parts. The injuries of the vertebræ were of the third and fourth dorsal. The fourth was fractured entirely through the body, near its middle, with the upper fragment pushed forward and toward the left side. No appearance of any attempt at union. The third was the seat of a very interesting condition. The body had sustained an impacted fracture, the lower half being driven into the upper, and ossific material poured out in considerable quantity, filling up the irregularities. The right transverse process had been entirely broken off, but re-united as firmly as ever with slight displacement downward. The cord was softened for about two inches of its length, and compressed.

THESE CASES are highly suggestive to a thoughtful surgeon. We do not think that all the possibilities of surgical help are exhausted in the treatment, or rather non-treatment of fractured vertebræ. As these cases came under the care of Dr. Amerman respectively two and six weeks after the receipt of the injuries, it was obviously too late for him to propose any radical measures; but where a case is brought to the surgeon immediately after the accident, it seems to us that more might often be done than our text books allow us to undertake.

In Case I, had the surgeon been fortunate enough to see it at the outset, there were obviously two possible modes of relieving the spinal cord of pressure. The first would have been by a firm and steady extension upon the head and hips, as has been advised in cervical fractures. By this method, pos-

sibly, the eleventh vertebra might have been reduced to its position. If this effort failed, the next resource would be to saw away the compressing arches of the tenth and eleventh vertebræ. This is absurdly objected to by authors, on the ground that it would lay open the dura mater and evacuate the spinal fluid; but no such result need follow. It is not much more difficult to cut away the arches of the vertebræ without wounding the dura mater, than it is to trephine the skull with the same immunity. The same reasons for the operation exist in both cases, and there is no ground for expecting more danger in one than the other. Total compression of the spinal cord is a mortal injury, unless relieved, and hence it is foolish to object to any moderately dangerous operation which promises possible success. It would be quite as rational to reject trepanning in depressed fractures of the skull.

Probably a certain number of failures would result from the fact that sometimes the cord is completely crushed off and disorganized, and in others it is so strained across the displaced fragments of the body of the vertebra, as to receive effectual compression from the front, but a good many cases would probably remain, which would justify the surgeon's boldness by a successful issue.

Diuretic Action of Colchicum.—Prof. Wm. A. Hammond, of the University of Maryland, in some experiments instituted upon himself and others, arrived at the following conclusions: 1st, That the colchicum increases the quantity of urine; 2d, That it increases the total amount of solid matters eliminated; 3d, That this increase is mainly due to an augmentation of the organic matter; 4th, That the amount of uric acid does not appear to be affected.

He thinks colchicum must be allowed to be a true depurator of the blood, and that hence we have an explanation of its good effects in those blood diseases, gout and rheumatism.

It seems that no constant effect was produced upon the quantity of uric acid eliminated, and hence these experiments do not conflict with those of Dr. Garrod. We are not, however, bound to admit that the presence of uric acid in the blood in

increased amount during a paroxysm of gout or rheumatism, is the cause of that paroxysm; and, consequently, because colchicum does not increase the quantity of this substance found in the urine, we are not to suppose that the remedy in question does not exert its influence through the kidneys.—*American Medical Monthly.*

The Clinique.

MERCY HOSPITAL—SURGICAL WARDS.

Service of Prof. E. ANDREWS, M. D., Attending Surgeon.

Reported for the EXAMINER.

GENTLEMEN:—The patient before us presents a well developed example of the tumor called *Epulis.* This term, which has come down to us on the venerable authority of the Greek physicians, is derived from two words, which signify, "upon the gum": but with all due respect to the shades of old surgical heroes, the name is an unfortunate one, for the tumor is not *upon* the gum, but *under* it. However, let us not insult the dead, for a glance at the most modern surgical works will show you that our best writers have not, in this disease, advanced a step beyond Hippocrates.

The term epulis is loosely applied to all kinds of tumors springing from the alveolar processes. As some of them are benign and others malignant, and as each writer describes the kind which has most attracted his own attention, we have given us the most contradictory accounts of this disease. The truth is, the word epulis should be abandoned, because it only indicates the locality of the disease, and we should speak simply of a fibrous, a bony, a benign or a malignant tumor of the alveolar processes, just as we do in any other part of the body.

The case before us is of the malignant variety. It has been in existence about six years, but until the past two months, its growth was slow. During the latter period, it has taken

on a great activity, and has now attained a size which will necessitate a loss of a portion of the lower maxilla. At first, these cases present a small, innocent looking tumor at the roots of some of the teeth, elevating the gum, and having a more or less constricted base. For a long time it may occasion no remarkable inconvenience, but at length it will be observed that one or more of the teeth are loosened, and that the adjoining ones are gradually falling into the same condition. Finally, they drop out, and an open sore is the result. The disease continues to spread, contaminating the glands of the neck and destroying the organs of the mouth, until the patient sinks and dies. In the present case, the growth has loosened all the incisor teeth of the lower jaw, and projects both on the inner and outer side of the symphysis. Also, you observe, there is a hard, scirrhus-like lymphatic gland under the right side of the jaw, and connected to the present tumor.

The malignant epulis is generally of the variety called cancroid, and like cancroid diseases of the lip, it is capable of cure by early excision. In all cases, however, it must be remembered that the tumor springs from the bone itself, and hence the excision must remove all the affected portion of the alveolar process,—otherwise it will certainly return. A mere shaving off of the soft parts will be of no use whatever. The best method is usually to administer an anæsthetic, and then proceed to extract all the loosened teeth. Next, to make sure work, remove one firm tooth on either side of the gap. Carry an incision around the tumor, at a little distance from it, cutting quite down to the bone, and remove the growth by dissection. If nearly the whole thickness of the jaw is affected, a section of it may be sawn out, but usually it will be sufficient to cut away the affected alveolar processes, with the gouge forceps, continuing the removal until you reach perfectly sound bone.

In the present instance, the patient has neglected herself rather too long, and I fear for the ultimate result, but yet I consider an operation to be her only hope.

As she is now sufficiently under the influence of the ether, I will commence by extracting the loosened incisors. You

observe that the canines are firm, but it will be safest to extract them also, because it is almost certain that their sockets on the side next to the incisors, are more or less contaminated. This being accomplished, and the soft part of the tumor cut away, I will cut down with the saw on either side, about two-thirds the depth of the jaw, and remove the intervening bone with gouge forceps. Thus you see we have excised every visible trace of the original disease. There only remains the hard tumor under the right side of the jaw. This, from its situation, must be taken out by an incision through the skin. Carrying my scalpel, therefore, along the base of the maxilla, you observe that I cut through the skin, fasciæ, and the thin plane of the platysma myoides muscle. The tumor is then easily dissected out, except the line of connection with the original epulis. This indurated chord I isolate, by pushing a straight bistoury through into the floor of the mouth, and carrying it around the offending tissue.

Thus we have removed the whole of the disease, so far as we can judge, and as the malignancy of this form of epulis is a modified form, there is a reasonable hope of permanent cure. I confess to you, however, I would much rather that this case had come to me earlier, before any progress had been made beyond the alveolar process. As it is, we have done our duty, and given the patient the best chance which the present advanced stage of the disease admits.

CHICAGO MEDICAL DISPENSARY.

Service, Prof. Wm. H. BYFORD, Attending Physician.

Reported for the EXAMINER.

I. *Ague-Cake.*—Patrick Gougens, æt. 16 years; has been under treatment some six months, and was presented at the clinic of July 13th, as a good illustration of that form of disease accompanying the intermittent, and, probably, some other forms of fever,—namely: the *enlarged spleen.*

The patient's history is briefly, as follows:—When about ten years of age, while residing at Ft. Hamilton, N. Y., he had an

attack of fever and ague (intermittent fever,) which lasted about two years, and towards the close of which the body began to swell, and a lump was discovered in the left side. For this, little was done, until about twelve months since, when, at the suggestion of an old woman, he commenced taking the following decoction: a handful each of horse-radish, parsley-root and lignum-vitæ shavings, with a pint of white mustard seed, were boiled twenty-four hours in a half-gallon of hard cider; of this, half a glassful was taken three times a day. The swelling (ascites) subsided, and, with the exception of the "hard lump" in the left side, the boy has been pretty well since.

An examination by the class, revealed the following condition:—abdomen very much enlarged, particularly in the hypochondriac and epigastric regions; and on a more minute survey the boundaries of an enormously enlarged spleen were very clearly defined,—extending from under the false ribs to the crest of the ilium on the left side, and beyond the linea alba in the median line—completely filling up the whole of the hypochondriac and epigastric regions of the left side, and rendering the abdomen tense and hard as a board to the touch. The liver was also found to be considerably enlarged,—extending some three inches below the floating ribs on the right side, with a thin but hard edge, which dipped beneath the spleen in the epigastric region. The surface of the spleen is flat and even, not nodulated or irregularly elevated; the lower boundary may be felt, as a thin, hard edge, by pressing the abdominal walls forcibly towards the spine, and its right margin may be made to glide over the liver, a little to the right of the median line.

In commenting upon the case, the lecturer remarked that it seemed to be almost a necessary part of the pathology of the intermittent fevers, that the spleen should become involved, and so uniformly was this the case as to have led theorists and speculators to urge that these diseases commence in the spleen. This, however, is by no means clearly proven; nor is the pathological explanation entirely satisfactory,—that splenic disorders depend on a congested condition of the por-

tal circulation, owing to the blood being driven in from the capillaries during the cold stage; the continuance of which congestion causes the hypertrophy,—a condition of affairs also affecting the liver with like results. The fact, however, that the cure of the fever does not cure these accompaniments; and the still stronger facts, that ague-cake is not unfrequently met with in persons who have resided in malarious regions where the intermittents prevail, and yet, who have never had an attack of the disease, shows the necessity for still further research. And this, following the clue given by this last class of cases, leads to the suspicion that the peculiar influence,—miasm, malaria or whatever it is,—which produces the intermittents, is also the cause of the enlarged spleen and liver. And this we accept as a satisfactory explanation. The effect produced on the blood, by chills and fever, is very apparent in the destruction of the red globules; whether proximately, in the mass of the general circulation, or secondarily, through failure in the functions of the spleen,—this last, caused partially by congestion and stasis of the portal circulation, but mainly by the morbific effect of the miasmatic poison,—is rendered doubtful, by our ignorance of the office of this organ.

The congestion, however, produces effects about which we can entertain no doubts, in damming up the blood in the large veins of the abdomen, soon followed by deterioration of the whole mass of that fluid, and the destruction of the equilibrium between its solid and liquid constituents,—the preponderance of the latter, tending towards extravasation and effusions, soon apparent in the more dependent parts of the body. This is the received explanation of the production of dropsies in chills and fever, and, doubtless, was the case with the boy before us. But dropsy may be produced in another manner,—by direct pressure on the trunks of large veins, either by enlarged organs near which they pass,—as in the anasarca of the lower extremities of pregnant women, produced by the pressure of the gravid uterus on the iliac veins,—or by aneurisms, hernias, etc. Any enlargement of the abdominal viscera is apt to produce such results; pressure on

the inferior vena cava, causing œdema of the lower extremities, and on the mesenteric veins causing abdominal effusions or ascites. This latter, coupled with the existence of these large veins on the surface of the abdomen enables us to diagnose, pretty accurately, the point of pressure. We see these veins, arising in the thorax, spreading, in a tortuous manner, over the abdomen, and penetrating it in the iliac region, performing the duties of the mesenteric, in gathering the blood from the intestines. Pressure on the emulgent veins also produces complications, the most frequent of which is albuminuria, many cases of which I have clearly traced to this cause.

In diagnosticating enlarged spleen, care should be taken to make a thorough examination; strip the patient and examine thoroughly by palpation and percussion; and then, in connection with the history of the case, but little difficulty will be found in determining the character of the tumor. The history from the patient is valuable and important in this respect. Ascertain whether he has ever lived in a malarious region, and if so, how long; whether he had had intermittent, remittent or typhoid fever, previous to the abdominal swelling. Enlargements of the spleen or liver always commence to show the swelling in one of the hypochondriac regions, and this gradually extends downwards into the abdomen, and the patient, if intelligent, will so describe its progress. Inquiries as to the previous state of health, are also important, —as these disorders never occur while in absolute good health, though there may, it is true, be no serious illness. These points will enable you to avoid the error of one of our country practitioners, who recently sent me a case of ovarian tumor, the history of which, before making any examination, clearly pointed out the existence of a simple, harmless, enlarged spleen.

The treatment may be inferred from this last remark, to be one of time and hygienic observances, rather than actively medicinal. The patient's health must be kept at the highest possible point; his diet must be generous, but not stimulating, good beef and mutton, forming a large proportion of it; he must exercise freely, in the open air if possible, and yet

must guard against exposure. Above all he must be removed at once from the influence of the miasmatic poison which, causing the trouble originally, is capable of maintaining its evil effects, and of neutralizing all attempts at cure. If medical interference be deemed necessary, you will fail if you resort to iodine or mercurials; but the agent, so specific in the intermittents,—*quinine*,—will be found most beneficial. This may be given in grain doses, three times a day, for two or three weeks, then intermit for a like space, and renew; this seems to be a necessary precaution against the action of the salt wearing out by long use.

This lad's occupation (that of a news-boy) keeps him in the open air a good deal, and the observance of the hints already given, are gradually and steadily improving his condition, so that now, aside from the somewhat aldermanic proportions of his abdomen, he is comfortable, and enjoys a very good degree of health.

II. *Triple Hernia.**—I show you here an interesting case presenting the unusual combination of three congenital hernias, of which two are scrotal, and one umbilical. Congenital hernias are the result of arrested development, in consequence of which the inguinal or umbilical canals remain open after birth, instead of closing at the proper period. The scrotal hernias, you see, are quite large, but easily reduced, and in nothing different from other tumors of the same kind. The umbilical rupture is small and soft. It is common to meet this congenital defect in any one of the three places which you see here occupied, but it is very rare to find the patient having them all at once.

Fortunately, although the canals in question occasionally remain open until after birth, yet the fœtal tendency to close them still continues for many months. Hence, in these cases we may almost always obtain a radical cure without any operative interference. All that is necessary is to keep the hernia constantly reduced, so that the presence of the intestine shall not prevent the contraction of the canal. By this simple

* Service, Prof. E. ANDREWS, Attending Surgeon.

treatment the tube, in from one to eight months, will close of itself, and put a final end to the difficulty.

In the umbilical hernia the treatment is not only simple in principle, but easy in practice. All that is required is a flat compress, made of sheet lead, or any other convenient material, and a band to keep it constantly in place. The nurse must be instructed to hold her finger upon the tumor whenever the compress is changed for purposes of cleanliness.

The inguinal hernia is more difficult to treat, because the infant is usually too small to be fitted by any ready made truss. If you have access to an ingenious mechanic you may order a truss made for the case; but, if not, you must construct one upon the principle of the compress and *T* bandage. The practical difficulty is that the child constantly soils the bandage and compress with its excrements. This may be met by having a sufficient supply of the dressings on hand, so that like the diapers, they can be changed and washed as many times a day as is necessary. Of course, the nurse must be instructed how to apply them, and where to make pressure with the fingers, for the purpose of keeping up the intestine, when she makes the change of bandages.

Medical Societies.

CHICAGO MEDICAL SOCIETY.

The Society met as usual. The Sanitary Committee was appointed by the President, as follows: Dr. Holmes for the North Side, Dr. Davis for the South Side, and Dr. H. W. Jones for the West Side. Dr. Davis made a verbal report for his division, and Dr. Holmes also. Dr. Holmes reported eight cases of diptheria in his practice, during the last four weeks, three of which were fatal.

Dr. Davis reported a case of poisoning by arsenic. The poison was sent from some drug store in this city, instead of cream of tartar.—[See paper appended.]

Dr. Dickinson, of St. Louis, was introduced to the Society, and brought to their notice a new anæsthetic, discovered during the manufacture of kerosene, and, for the present, named *kerosolene.* [A paper from Dr. Dickinson will be found in another portion of this number, embodying all that is as yet known of this article.] On motion of Dr. C. G. Smith, the kerosolene was referred to a committee, with a request to examine and report on its qualities at the next meeting. The Chair named as the committee, Dr. Amerman, Dr. Orrin Smith, Dr. Wickersham.

Dr. Wickersham related a case of partial anæsthesia, produced by inhaling the vapor of the oil of turpentine.

Asthma, the proposed subject, was then discussed by Dr. Amerman, Dr. C. G. Smith, Dr. Waite, Dr. Orrin Smith, and Dr. Wickersham. Dr. Amerman showed an interesting specimen of aneurism of the aorta, in which a large secondary sac had been found, which finally communicated to the trachea, causing death. Dr. C. G. Smith exhibited a specimen of fractured skull.

On motion of Dr. Wickersham, it was voted, that reports of cases shall come before the regular discussion, in the order of business.

The following was chosen as a subject for discussion for the next meeting: "*The influence of Iodide of Potassium on the system.*"

Dr. Reilly was chosen as the essayist.

CHARLES G. SMITH, *Secretary.*

CHICAGO, 19th July, 1861.

CASES OF ARSENICAL POISONING, REPORTED TO THE CHICAGO MEDICAL SOCIETY, JULY 19, 1861. BY N. S. DAVIS, M. D., PROF. OF PRACTICAL MEDICINE, ETC.

On the evening of the 8th inst., I was called hastily to a boarding house only a few rods distant from my residence. I found five members of the family, including Mrs. P., the lady of the house and her daughter, two young men boarders, and the cook, all suffering great distress at the epigastrium, active and frequent vomiting, a sense of burning and con-

striction in the stomach and œsophagus, great prostration, a metallic taste in the mouth, and irregular griping pains in the abdomen. The young lady and one of the young men had nervous twitchings and slight cramps in the muscles of the extremities. On inquiring I learned that the family had taken supper only about half an hour previous, and that all five of these persons began suddenly to be sick within ten or fifteen minutes after eating. Further inquiry developed the fact that some hot muffins had been prepared for supper, of which the five sick persons had eaten, but no others. This led to an immediate examination of the soda and cream of tartar which had been used in making the muffins. Concerning the first I could discover nothing wrong, but the second was evidently not cream of tartar, but a white powder, slowly soluble, distinctly metallic in taste, and very heavy. From the prompt and thorough vomiting in all the cases, I was suspicious that the poison was tartrate of antimony and potassa, and yet the taste and solubility both, differed from that article. A specimen was immediately sent to Prof. Mahla for chemical analysis, and within an hour he returned a message, saying, that the substance sent him, and which had been used as cream of tartar, was unmixed arsenious acid. Accompanying the message was a glass tube with the arsenic reduced to a metallic state, which is here for the inspection of the Society. Though then uncertain as to the nature of the poison taken, I found within a few minutes that all the sick ones had thoroughly evacuated their stomachs by repeated free vomiting, so much so that I was certain nothing could be gained by further evacuants, either by emetics or the stomach-pump. Neither did I believe there was anything left in the stomach that could be neutralized by chemical agents. On the contrary, the symptoms were already those of incipient gastritis with great prostration, and burning pain in the epigastrium. In one case the pain extended to the bowels, and was accompanied by one copious watery evacuation. Hence, I directed warmth to the extremities, sinapisms to the epigastrium, and the sixth of a grain of sulph. morphia, every half-hour, until vomiting ceased, and the patients were inclined to sleep

Their thirst was appeased by pieces of ice which they were allowed to swallow instead of drink. Under this treatment all had been much relieved, both from the vomiting and distress, before midnight, except the young lady. She continued in great distress in the abdomen, with frequent vomiting, a small and frequent pulse, cold extremities, a pallid countenance, and frequent spells of faintness, until 4 o'clock in the morning, when she fell asleep and rested quietly about two hours. She continued to have faintness or sinking spells whenever moved, and occasional vomiting all the subsequent day. The other patients were entirely comfortable so long as they remained at rest. But any attempt to exercise would cause sickness of the stomach, and great muscular weakness. They were all kept quiet for two or three days, allowed only a very bland and simple diet, and all rapidly recovered. In endeavoring to trace the origin of the arsenic, Mrs. P. gave the following statement:—Some three or four weeks previously, a new cook had been engaged for service in the family. Soon after she came, she found fault with the quality of the cream of tartar, which had been procured of their groceryman, and insisted that some should be obtained from a drug store. Accordingly the driver of the groceryman's wagon, the next time he came to deliver packages and receive orders, was requested to procure for them two or three pounds of cream of tartar at some drug store. He pretended to do so, and at his next visit delivered a package, duly labeled, cream of tartar, with the name of some drug store accompanying it. About this time the cook was discharged, and the package was laid aside, unopened,—where it remained until the morning of the 8th inst. In the meantime, the previous supply having been exhausted, Mrs. P. on that morning, opened the package, emptied it into the usual place for cream of tartar, and threw the paper on which the label was pasted, into the fire. She says she is certain that the package was labeled in large and plain letters, "cream of tartar," and she *thinks* the label contained also the name of a drug store, but she cannot remember what store. In the meantime, the young man who took the order and brought the package, has changed his place of

employment, and we have not been able to trace it beyond what is indicated in the above statement. It would appear that somebody, dealing in drugs, had been so exceedingly careless as to put up arsenious acid by the pound, in mistake for one of the most common articles in domestic use. Is it possible that any druggist in Chicago, is so careless as to keep large quantities of arsenic in any place where it could possibly be put up in the manner indicated by the above statement? If so, it is high time they were looked after.

DEWITT COUNTY MEDICAL SOCIETY.

This Society met in Odd Fellows Hall, Marion, July 2, 1861; the President, Dr. Madden, in the chair. The meeting was opened with prayer by Rev. M. Richards, after which the minutes of the previous meeting were read and approved.

Drs. D. W. Edmiston, R. T. Richards and B. K. Shurtleff made application for membership. The censors examined the applicants, reported favorable to, and recommended, their election. On motion of Dr. Lewis the report was received and the candidates unanimously elected members of the society. Society adjourned to meet at 2 o'clock, p. m.

Afternoon Session.—Dr. Tyler reported an interesting case of what was called pneumonia, by a so-called eclectic doctor of Wapella. The disease, however, proved to be an affection of the throat. The case proved fatal, probably from the error in diagnosis. Dr. Tyler also presented an interesting case of cardiac affection, which was examined by the members of the Society. The case elicited a lengthy discussion, in which all the members present participated.

Diptheria, the subject for general discussion was taken up, but for the want of time was cut short. Dr. Wright gave notice that he would read a paper on diptheria, at the next meeting of the society.

Drs. Edmiston and Adams, the regular essayists, were not present. Dr. T. W. Davis was also expected to read a paper,

but did not. He was excused. Drs. Edmiston and Adams were continued. Dr. Richards was also appointed to read an essay at the next meeting.

On motion, the thanks of the society were tendered to the Odd Fellows, for the use of their hall. On motion, the thanks of the society were tendered to Dr. Tyler and lady, for the excellent dinner gotten up, at their expense for the society. On motion, the proceedings of this meeting were ordered to be published in the *Central Transcript* and the Chicago medical journals.

On motion, the society adjourned to meet in Mount Pleasant the first Tuesday in October next, at 10 o'clock, a. m.

JOHN WRIGHT, *Secretary, pro tem.*

Selections.

ARSENIATE OF SODA IN SCROFULA.

By Dr. BOUCHUT.

From Braithwaite's Retrospect.

The manifestations of the scrofulous diathesis are all exceedingly inveterate, and the treatment directed for their cure is only too often unsuccessful. All forms of scrofula, however, are not equally obstinate. The tertiary forms, which appear as tuberculosis, are generally incurable; of the other forms, whether primary or secondary, those which affect the bones are especially tenacious and of long duration; and, in truth, it is only over the mucous, glandular, and cutaneous manifestations of scrofula that therapeutics can exert any decided power. The author has used in turn all the medicines usually reputed anti-scrofulous: iodine, mercury, iron, baryta, bromine, extract of walnut leaves, cod-oil, arsenic, etc.; but, of all these agents, the arseniate of soda has appeared to him to be, under the circumstances which he describes, the most energetic and the most efficacious. In suitable doses, arsenic is one of the best *tonics* and *corroborants* we possess; it is only in too large doses, or when its use is too long continued, that it deserves to figure as an *alterative*. As a tonic, it is an admirable succedaneum of iron, quinine, and cod-liver oil; and is of great service in the majority of organic and nervous cachexiæ. In the scrofulous cachexia it is an ex-

cellent remedy; and under its influence children ordinarily regain their appetite, strength, and colour. In such cases there is amelioration only; but the cases where it cures are those in which the diathesis has not yet produced a cachectic condition, and where the local manifestations are superficial and confined to the skin, the mucous membrane, and suppurated lymphatic glands. Beyond these, in tuberculosis and the diseases of bones, it is only a good palliative. But, although thus limited, the therapeutic effects have considerable importance. It is no slight matter to be able to abridge the duration of a coryza, an ophthalmia, or the suppuration of glands, cutaneous ulcers, otorrhœas, leucorrhœas, etc., which depend upon the scrofulous constitution. The author possesses a number of facts relating to such cases, as well as to scrofulous perforation of the palate, seputed syphilitic, suppurating cervical glands (formerly called *rcrouelles*), etc. The result in all of them was the same; a rapid cicatrization of the sores was always observed. The following are some examples:

Obs. I. A female child, *aged* 10, entered the Hospital Ste. Eugénie on 3d June, 1858; born of scrofulous parents; pale, thin, and weak, with an open scrofulous sore under the chin, discharging an abundant suppuration; below the angle of the jaw, other enlarged glands, not suppurated; appetite and digestion natural. Arseniate of soda was prescribed in increasing doses, from 5, 10, 15, to 20 milligrames (1-14 to 1-4th grain) in a julep. Taken from July to December, the medicine produced no disturbance in the digestive organs. On October 15th, the child was completely cured, and was dismissed on December 27th. The tumors of the neck had disappeared, and there remained a solid cicatrix of good appearance under the chin.

Obs. II. Girl of 13; two large scrofulous ulcers in the neck, with abundant suppuration, and the skin undermined. Arsenate of soda in increasing doses. Cure in three months.

Obs. III. A girl of 10, suffering from osteitis of the phalanges of the big toe, onyxis, and suppuration of the matrix of the nail; treated with arseniate of soda internally, and footbaths of chlorate of potash. In three months the wound had completely healed, although there still remained some swelling of the toe, and the skin was red and tender. The child had colour, had a keen appetite, and became stout and plump.

The fourth case, a girl of 11, affected with lichen, and presenting numerous glandular enlargements and fistulous ulcers under the jaws, had a chronic abscess of the chest, which had been punctured and injected with iodine. She had been treat-

ed with cod-liver oil for three months, but had lost flesh, and the abscesses continued to discharge an abundant suppuration of an unhealthy character. On May 15th, the arseniate of soda was commenced. On July 15th, the abscesses were almost cured; and the child had a fresh healthy colour, and had gained flesh. On September 1st, the abscesses on the neck and chest were completely closed. The cure continuing, the child was dismissed, November 8th. Since that date all the scrofulous children presenting superficial cutaneous affections in M. Bouchut's wards have been treated in the same way, and the result has always been favourable.

In the case of a girl, aged 11, affected with swelled submaxillary glands, and large scrofulous ulcers extending from the ear downwards under the chin on both sides, the improvement began after a fortnight's treatment with the arseniate of soda, and she left the hospital cured in four months.

Another girl, the subject of tinea tonsurans and osteitis of the big toe had been ill for a year, and entered the hospital, July 8th, 1858. The general health was pretty good; with the exception of some paleness, there was no functional disorder. Epilation, lotions of corrosive sublimate, applied to the head; arseniate of soda internally; sulphurous baths. In November, 1859, the sore of the foot had completely cicatrized; but the tinea tonsurans had spread. The epilation was continued, and she was dismissed cured on the 15th October, 1860.

In all these cases the arseniate of soda was begun in doses of 5 milligrammes (1-14th grain), and increased at the end of a few days to 10,15 and finally 20 milligrammes (1-4 grain.) Beyond that dose, symptoms of gastralgia, vomiting and diarrhœa are apt to come on, and should be guarded against. It may be given in gum julip, in Bordeaux wine, in syrup of cinchona, or syrup of gum. The following formula may be employed, and the medicine left in charge of families, for use during several weeks: Syrup of cinchona, 300 grammes (℥ x)*; arseniate of soda, 5 centigrammes (gr. j.); one or two teaspoonfuls each day; each teaspoonful containing about 1 milligramme (1-70th grain) of the arseniate of soda. In this dose, and with the precaution of increasing it gradually, the arseniate of soda presents no danger. Its effects are, to increase the appetite and produce a richer sanguification, manifested by a ruddy colour of the skin, muscular energy, and an unmistakable appearance of health. Such results, says the author, are not to be despised in the case of scrofulous subjects, pale, emaciated, and exhausted by long suppurations and mucous discharges; and it is on

* This should, evidently, be ℥'s, instead of ℥'s.

these grounds that he recommends the arseniate. He does not propose it, however, as a specific, but only as a tonic or corroborant, which stimulates the appetite and imparts increased activity to the molecular nutrition of the tissues. In scrofulous constitutions, it is the slowness of the movements of nutrition, and of the exchange of the circulating materials, which gives the diseases their peculiar character. In this respect the arsenical medication is useful, as perhaps the cod-liver oil is also, by stimulating nutrition; and the results obtained should induce practitioners to have resource to it. It must be noted, however, that the arseniate of soda is suitable only in scrofulous diseases of the cutaneous, mucous, and glandular textures. Its efficacy is doubtful in diseases of the bones; and it is only a palliative in the case of tertiary scrofula, that is in tuberculization.—*Bull. Gen. de Therapeutique.—Edinburgh Medical Journal, March*, 1861, *p.* 830.

ANÆSTHETICS—THEORY OF THEIR ACTION.

From the Boston Medical and Surgical Journal.

The following letter is of interest at the present time, in connection with the new anæsthetic announced in our last.

Messrs Editors:—Substitutes for ether, as anæsthetic agents, are frequently proposed, and some of them have been practically introduced, with some success. None, however, surpass ether in the two most important qualities of efficiency and safety, ether is far preferable to any and all anæsthetics thus far discovered.

It may prove interesting to the profession, to inquire into the mode of action of the class of bodies known to produce anæsthesia, when inhaled. This subject has been very carefully studied by me from the outset of anæsthetic practice, and with a view to the discovery of some general law.

The first impression among physicians was that the anæsthetic state was merely one of temporary intoxication.

Secondly, the theory of high excitement, followed by corresponding collapse, accounted for the phenomena. Dr. John C. Warren took at one time, this view of the matter, and spoke of etherization as "devouring the sensibility by high stimulation, and hence a corresponding nervous depression" which was the anæsthetic state. Others have supposed that etherization produced a partial asphyxia; hence the expression early made use of by some of our surgeons, that there was "little difference between hanging, drowning and etherizing."

It has also been alleged that ether, absorbed into the sanguineous circulation, affects directly the nervous filaments, either at their origin in the medulla spinalis, or in their distributed extremities, or in both these parts. In support of this allegation, it was cited that the direct application of ether to an exposed nerve *destroyed* its sensibility. By the italization of that word, I call attention to the difference between the anæsthetic state of temporary suspension of sensibility, and the destruction of it; for the nerve acted upon directly by ether, does not recover its powers, but is permanently paralyzed.

Another state of the circulation has been observed, which it was hoped would give some clue to the action of anæsthetic agents,—namely: that of slackening, and even temporarily wholly suspending the circulation of blood in the capillary or extreme vessels. It was supposed that by thus cutting off a supply of circulating blood stimulus to the sentient extremities of the nerves, sensation was temporarily suspended. The commencement of insensibility in the remote extremities, the feet, legs and hands, seems to indicate that sensation was suspended at those points first.

The French physiologists, Flourens and Longet, are of opinion that the effects of anæsthetics commence, and primarily act on the great nervous centres, the medulla spinalis and medulla oblongata; and that if the full effect reaches the bulb of the medulla, death will take place from total suspension of all the vital functions of the body.

A more chemical explanation of the action of anæsthetics, is that they all abstract oxygen from the blood, and hence reduce its peculiar stimulating powers on the nerves, and that some of them leave poisonous products, while those left by others are innocuous. Thus, as we have formerly stated, chloroform or the ter-chloride of formyl abstracts three equivalents of oxygen, three equivalents of chlorine.

Bi-sulphide of carbon, one of the most terrible anæsthetics ever proposed, the dangerous effects of which I have experienced, and have warned the public about seasonably, acts as a powerful de-oxidizer of the blood, both the carbon and the sulphur abstracting oxygen, the first producing carbonic oxide or carbonic acid, while the latter forms sulphurous acid. Carbonic oxide and sulphurous acid are poisons, as is also chlorine, before mentioned.

All the acidiferous ethers when decomposed, as they are, in the organs of respiration and circulation, leave their acids in combination with the blood; hence, nitrous and nitric ether are known to destroy life, and hydro-chloric ether and chloride

of hydro-carbon undoubtedly act in the same way, and injure the quality of the blood. Acetic ether is not objectionable, since an organic acid is easily decomposed in the processes of respiration, and is removed in the form of carbonic acid and vapor of water, usual products of normal respiration.

Sulphuric ether, as it is improperly called, since it does not contain any sulphuric acid, is a pure hydro-carbon, with one equivalent of oxygen—C, H, O. When decomposed by the action of the blood, it may be converted into aldehyde, acetic acid, and lastly into carbonic acid and water, no fixed product remaining in the blood, but all able to be removed by respiratory action. The oder of the breath of a patient who has been etherized, shows that there are exhaled the oxydized products of the ether, and it is known by analysis that a much larger proportion of carbonic acid is exhaled from the lungs during the etherized state, than in the normal condition of the system.

Without finally adopting any theory of the chemical and physiological action of anæsthetics generally, we may, perhaps, be allowed to call attention to a general law, namely: that all very volatile hydro-carbons act as anæsthetics like the others. Thus, it has long been known that benzine, benzole, oil of turpentine, naptha, when inhaled, will all produce the anæsthetic state. The highly volatile oils of coal tar, likewise, possess anæsthetic properties, and one which has recently been tested in surgical practice, known as keroselene, a highly volatile naphtha, seems to be the least offensive of them. It is evidently a very pure hydro-carbon, analogous to highly rectified naphtha, and does not contain any oxygen, as is proved by its property of preserving potassium from oxidation, when it is immersed in it. The first samples of keroselene which I tested two years ago, proved quite irritating to the organs of respiration, but I have learned recently that a purer and more volatile product has been made at Mr. Downer's works, though I have had no opportunity of testing it practically

It is obvious that there are two or more volatile oils in the keroselene of commerce, and they are separable by graduated distillation. Some care, therefore, is requisite in the preparation of an uniform product; one which may be properly the subject of experiments by inhalation. I would observe that no analysis has yet been made of the keroselene oils.

Charles T. Jackson, M. D.

Foreign Items.—Dr. Elsberg gives us, in his Summary of Foreign Medical Literature, for July, (*Am. Med. Monthly*,) a resumé of Sansom's Experiments on the Action of Chloroform on the Blood.

According to the author, the effect of the mingling of liquid chloroform with the blood is an almost total solution of the red corpuscles. Under the microscope, a nearly homogeneous yellow-tinted field presents itself, with here and there only the faint outline of a red blood-corpuscle. The white corpuscles, on the other hand, appear to have been uninfluenced. To trace the most subtle effect of feebler influences, M. Sansom used in these investigations frog's blood. Placing a little undiluted on a glass slide, he exposed it for only about two seconds to the vapor proceeding from an open bottle of chloroform at the ordinary temperature of the air; having covered the blood with a slip of thin glass, he examined it under the microscope, and, as the result of his examination, he believes the progressive changes on the blood-corpuscle to be the following:

(1.) Corrugation of cell-wall; alteration of shape; coherence.
(2.) Solution of cell-wall.
(3.) Coalescence of cell contents.

To observe the effect of chloroformization of circulating blood, he exposed the web of a frog's foot on a frog-plate under the microscope, and then sprinkled a few drops of chloroform upon the damp cloth in which the frog was wrapped.

The first change noticed in the circulation was an increase of its rapidity. In about twenty seconds the capillaries had dilated to nearly twice their normal size. Then the flow became slow, the corpuscles manifested the tendency to aggregate, and, in some instances, to assume the shape which chloroform promoted in them out of the body. The cohering blood-corpuscles toiled along the capillaries in an interrupted current. More chloroform being given, the tendency to cohere became greater, the current slower. Ultimately, stasis of the blood occurred, (first in the larger vessels,) and death.

The most noticeable changes induced by chloroform on the circulating system are therefore:

(1.) Acceleration of the flow;
(2.) Dilatation of the capillaries and the blood-vessels;
(3.) Alteration in shape of blood-discs and tendency to cohere.
(4.) Stasis of the blood.

These facts have, I believe, a great influence on the theory of anæsthesia. That "narcotism is suspended oxygenation" is a doctrine receiving every day greater confirmation. I be-

lieve that the action of chloroform is directly upon the blood-corpuscle; that thereby its capability of receiving oxygen is impaired, and its faculty of stimulating the various functions of life subdued; in other words, that the phenomena of chloroformization are due, not to the agency of a circulating poison, but to the influence of an altered blood.

THE LAUDABLE object and example of Dr. Gairdner in publishing the statistics of the consumption of alcoholic stimulants by the hospital patients under his charge, should certainly stimulate all hospital physicians to prepare accurate records of the actual expenditure of alcoholic stimulants. In how many various ways this would lead to extremely valuable results, scientifically, morally, economically, as well as therapeutically, we need not here point out. We quote table of

Average Daily Consumption of Alcoholic Stimulants, per Patient, during Five Successive Years, in the Royal Infirmary, Wards 4, 15, *and* 16.

	1856.	1857.	1858.	1859.	1860.
GENERAL WARD—Males—					
Wines, (ounces),.....	0.158	0.465	0.710	0.928	0.739
Spirits, (ounces),.....	0.056	0.312	0.287	0.184	0.454
Malt Liquors, (pints),.....	0.039	0.040	0.025	0.053	0.058
GENERAL WARD—Females—					
Wines, (ounces),.....	0.446	0.584	0.799	1.498	1.200
Spirits, (ounces),.....	0.295	0.312	0.223	0.164	0.510
Malt Liquors, (pints),.....	0.064	0.069	0.048	0.061	0.048
FEVER WARD—Females—					
Wines, (ounces),.....	0.715	1.256	1.734	1.725	1.140
Spirits, (ounces),.....	0.069	0.083	0.346	0.052	0.135
Malt Liquors, (pints),.....	0.023	0.029	0.135	0.069	0.027

As to the results, Dr. G. avers they are in two particulars most unexpectedly opposed to all his previous impressions. While he fully believed that the use of alcoholic stimulants in his hands had been at least stationary, if not decreasing, the table shows that there has been a nearly uniform increase. Again, it appears that among the women in the general ward the consumption of wine, during the entire period of five years, is decidedly greater than in the corresponding male ward; that of spirits but little less, and that of malt liquors at least as much. As the two wards are very much alike as regards the class of cases admitted, and have been during very nearly the whole period subject to exactly the same adminis-

tration, it is hardly possible that this fact can be accounted for otherwise than by the apparent need for the exhibition of stimulants, and the demand for them having been actually greater among the women than among the men. Dr. G. adds: "I am quite certain, at least, that there is nothing in the personal convictions of myself or my assistants, to account for the fact of so liberal a comparative expenditure of wine on the female side, inasmuch as all my own prejudices and those of most other people, were assuredly in the opposite direction, viz., to the effect that women ought to require, and in the better class of society do require, a less quantity of alcoholic stimulation than men, when suffering under disease, and especially acute disease."

Many other points of Dr. Gs'. article we would willingly quote, but hardly can do them justice. Dr. G. by no means goes the entire length of the late lamented Dr. Todd, and gives stimulants, "if at all, only in very moderate quantities along with the food, and in general, as an aid to the digestion of food; the only exception being in the case of persons largely and habitually dependent upon stimulants from old and formed habits, and in a comparatively small number of acute cases for a very few days, sometimes only a few hours, to help the system over a dangerous crisis, or to co-operate with other needful remedies, such as antimonials, in pulmonary inflammation."

Coffee as a Remedy for Whooping Cough.—In Dr. George D. Gibbs' work on whooping cough, published in London in 1854, he quotes Dr. Jules Guyot as authority for recommending strong coffee as a specific for the cure of this disease. We [*Boston Med. and Sur. Jour.*] have tried it in several instances with marked effect. In one case, the patient being a little girl six years of age, there was not a single "whoop" after she began to take it. She took a tablespoonful and a half of very strong coffee, sweetened, but without milk, three times daily. A younger child, in the same family, was well of the disease in three weeks; no other remedy was used in either case. In another instance, in which we have recently tried it, the same happy result followed, the "whooping" symptom being at once arrested, and the complaint coming to a speedy termination. It is difficult to fix the dose definitely, and this may account for the unsatisfactory result in one or two instances we have heard of, in which a small dose was given. Another important consideration which should not be lost sight of, is, that three-quarters, probably, of what is drank for coffee, is made from nothing but peas or beans. The only sure method

is to get the coffee berry itself, and have it burnt under one's own eye. The decoction should then be given as strong as possible, and in a quantity only short of enough to cause the unpleasantly stimulating effects of this beverage. Children take it very readily. The last patient referred to above, was only eighteen months old, and took, once a day, half a cup of coffee thus prepared, without the least noticeable injurious effect. As whooping cough is rather prevalent at the present time, we have thought it worth while to remind our readers of so simple and pleasant a remedy for it.

Dolbean reports two cases of prolapsed bowel, (one in a girl three years old, the other in a boy five years old,) both of which were cured by the subcutaneous injection of sulphate of strychnia, 30 centigrammes to 30 grammes of water. The canula was introduced one centimetre to the right of the anus to the depth of 0.5 centimetre, and 10-11 drops of the solution injected.

Book Notices.

A Treatise on the Practice of Medicine.—By Edwin R. Maxon, M. D., formerly Lecturer on Institutes and Practice of Medicine in the Geneva Medical College. Philadelphia: Lindsay & Blackiston. 1861. 8vo. pp. 705.

It is to be regretted that his "exciting and extensive practice," during two years of which ex-Prof. Maxon wrote his *Treatise*, was not of so engrossing a nature as to preclude the, no doubt worthy, practitioner from essaying the *role* of author. That it was engrossing enough to prevent the writer fulfilling his intentions, a perusal amply satisfies us; for it is neither "a valuable and interesting work for the student," nor "a reference for practitioners of medicine generally," as the author sets forth in the preface. But, surely, no pressure of practice could be so great as to crowd out of his mind, who aspires to rank with Watson, Wood and Eberle, all observance of Lindley Murray, all semblance of regard for the genius, construction, and resources of the language in which he writes. The peculiar, offensive character of comparisons is well known; and yet such an effort as this, cannot fail to provoke them, when we remember the graceful ease of eloquence, the manly,

sensible modesty, the depth of research, and the wealth of wisdom, skill and learning which conspire to make WATSON'S *Practice* the model text-book for the student, the fascinating companion of the practitioner.

Dogmatic in tone, obscure and shallow in treatment, inelegant and monotonous in style, in this first, we cannot look forward with much zest to the second, edition of the *Treatise*, which its sanguine author already anticipates; but charitably consigning it to a merciful repose in the dusty fastnesses of our upper shelves, counsel its progenitor to devote himself to the duties and demands of his practice, as one to whom the *mare nigrum* offers only an inglorious grave, instead of bearing him, on its inky waves, to the renown and glory of successful authorship.

OUR EXCHANGES.—With the exception of some half-dozen of the leading ones, the thirty or forty-odd periodicals which were wont to flood our sanctum, month after month, are now *non est*,—whether practically or figuratively declared "contraband of war," we know not; nor whether the fault be due to the postal arrangements,—or derangements. The sterling *Lancet*, and the portly *Braithwaite*, the dignified *American Journal* and the scholarly *Medico-Chirurgical Review*; with the elegant *American Medical Monthly*, and the *Berkshire*, of the quarterlies and monthlies for July, are received, as also the more sprightly weeklies of Boston, New York and Philadelphia. But our cotemporaries of Cleveland, Columbus, Cincinnati, New Lebanon, St. Louis, Louisville, and those not mentioned in the above list, of the leading eastern cities, have, as yet, at the close of the month, failed to put in an appearance. Of course, those of our unfortunate Southern brethren of Secessia, have sadly-weighty reasons for their absence.

BRAITHWAITE'S *Retrospect*, Part XLIII, with 352 solid pages, fully maintains its well-earned reputation; and the physician, unable to subscribe for the leading foreign periodicals, can make no more economical investment, than by subscribing for the *Retrospect*,—that is, if he would put himself *en rapport* with the improvements and progress of his profession,

in its every branch. The diseases of women, having given rise, of late, to, perhaps, more attention than has been devoted to any other special subject, the editor, peculiarly fitted for the task, by his position as lecturer on *Obstetric Medicine* in the Leeds School, makes a special report and commentary on the valuable and interesting papers thus drawn forth during the past six months; and this, it is proposed to continue from time to time. This number also contains the index for the volume, and the usual useful synopsis of the most practical articles, showing, briefly and comprehensively, the most important indications of treatment, published by different writers within the last half year.

W. A. Townsend, 39 Walker street, New York, is the American publisher; and W. B. Keen, 148 Lake street, Chicago, the Illinois agent.

In addition to its strictly professional matter, the *Medico-Chirugical* presents the claims of the author of *Don Quixote* to the title of *Medicinæ Doctor*, as advanced by late French and Spanish writers; some of whom not only do not hesitate to assign Cervantes' master-piece a high rank as a treatise on insanity, but for Cervantes, himself, a priority to Pinel in the moral treatment of this disease, and to Broussais in recognizing the intimate connections between the digestive apparatus and its function and the general health, physical and mental. Despite the reviewer, however, we doubt if Sydenham recognized this claim when he recommended the *Quixote* as the best book for a medical student to read.

The editorial department of the *Medico-Chirugical* is a field of the poetry and romance of our profession, most fascinating to the imaginative and enthusiastic student of its various phases.

The London *Lancet*, for July, is as heavily freighted as usual, with the rich fruits of the minds of Great Britain's most eminent men. The first dozen pages are devoted to clinical matter,—Holmes Coote on Chronic Diseases of Bones and Joints, Chambers' first Drill for Auscultation (which we shall give in our next), and Gairdners' Observations in the Royal

Infirmary, Edinburgh. Tilt, Skey, Wilson, and others, furnish interesting original papers; and the remainder of the table of contents presents a perfect *embarras des richesse* to one seeking to select its most valuable features. The Decennial Index, from '51 to '60, accompanies this number.

James Herald, 24 Ann street, New York, is the American publisher; Norris & Hyde, Madison street, Chicago, Illinois agents.

The most important feature of the current number of Dr. Hay's *Journal of Medical Sciences*, is the valuable paper of Dr. W. W. Morland,—"*The Morbid Effects of the Retention in the Blood of the Elements of the Urinary Secretion*,"—the Fisk Fund Prize Essay. The review and bibliographical departments are full and interesting; and the summaries of foreign and domestic intelligence, as usual, comprehensive.

Of our other exchanges, our readers are able to judge for themselves, from the numerous excerpta we make from time to time; though occasionally, as in the present number, a pressure of original matter abridges the space usually occupied by selections.

Editorial.

Clinical Instruction and Medical Schools.—In a late number of the *American Medical Times*, the editor made some judicious remarks on the importance of a close connection between the Medical Colleges and Hospital Clinical instruction. In the article, he alludes to the Long-Island College Hospital, and the New York Medical College and Charity Hospital, as institutions presenting good examples in this respect. We wish to remind the editor of the *Times* that the two institutions just named, are not the first to set the example referred to. Fully six years before either of them had an existence, direct Hospital Clinical instruction, both in Practical Medicine and Surgery, was established as a part of the regular annual course in the Rush Medical College of this city.

The courses on Clinical Surgery were given by Professors Brainard, Herrick and Freer; those on Practical Medicine, by the senior editor of the EXAMINER. They were not mere collateral advantages, which the student might enjoy or not at his option, but the clinics were given *daily*, and every candidate for graduation was required to attend them as regularly as any part of the College course. In the establishment of the Medical Department of the Lind University in this city, two years since, Hospital Clinical instruction was made a still more prominent part of the curriculum of study. Regular Professorships of Clinical Medicine and Clinical Surgery were established, and *daily* clinical instruction at the bedside in the wards of the Mercy Hospital, was made a necessary part of the College course. And in addition to the daily clinic in the Mercy Hospital, the students of this University now have access to two clinics per week in the Marine Hospital, and one Surgical and one Medical clinic each week at the Chicago City Dispensary. It is true that the College and the Hospitals are not under the same roof, but they are only a few blocks apart, and the arrangement of all the clinical advantages is such as to constitute a prominent and harmonious part of the College course. Nor is the Clinical instruction in connection with the Lind University, limited to the ordinary winter term of the colleges, but it is continued to good classes throughout the whole year, except the month of August.

In no city in the United States, has Clinical instruction been made a more prominent or necessary part of the education of the medical student, than in Chicago, from the autumn of 1850 to the present time.

CHOLERA INFANTUM—SUMMER COMPLAINTS AND TEETHING.—At the present season of the year we can call the attention of our readers to nothing more important, than the following paragraphs taken from the introductory lecture of Dr. Jacobi, of New York, on the subject of "Dentition and its Derangements."

"You know that among the public at large, even among the educated portion of the community, *teething* is regarded as one of the two scape-goats of all diseases of infantile age.

Teething and worms are among mothers, acknowledged as the universal and all-powerful sources of disease."

"A mother will bring you her child, thin, emaciated, and anæmic, with sunken eyes and the wrinkled physiognomy of old age, and tell you she is well aware the poor thing is suffering from teething, and that, therefore, nothing can be done to alleviate its sufferings. *She will never be convinced that the child is dying from her own neglect;* that she has allowed a slight catarrh of the intestines, perhaps, to degenerate into incurable follicular ulceration. * * * * Teething is thus considered the most efficient cause of most of the terrible diseases, which prove fatal to thousands of the rising generation. *I can assure you that the readiness to attribute all the diseases of infantile life to teething, has destroyed more human beings than many of the wars described in history.* For, though parents are so much impressed with the belief of the dangers of teething, still they never think of attempting to save the lives of their children by counteracting the supposed life-endangering power of a normal process."

Again he says: "And it would be fortunate if the prejudice were confined to the public. But unfortunately, it still lingers in the medical profession, and it is for this reason that I have dwelt upon it thus lengthily. Nothing is more common than to hear doctors, young and old, in cases of infantile disease, diagnosticate *teething*, after mother and nurse had done so before, and nothing is more frequent than to be told that the death of a child was the consequence of dentition. Consider, for a moment, the absurdity of the conclusion, that a normal, physiological process is fatal to the existence of a living being. Who has ever ventured to assert that menstruation, pregnancy, or the climacteric years are the direct causes of death? *It is equally absurd to assert it of dentition*; and yet such statements are daily made by physicians."

The above extracts from one of the most eminent and experienced physicians of New York, accord exactly with our own sentiments. We regard the idea that the *natural* growth of the teeth produces disease just as absurd, as it would be to attribute disease to the growth of the hair, the toe-nails, or

any other part of the body. And yet, as often as July and August comes, thousands of children, from three weeks to three years old, are attacked with various grades of gastric and intestinal irritation, which, in nine cases out of ten is attributed to "*teething.*" Every day our office is thronged with these little innocent beings, emaciated, eyes sunken, skin wrinkled, and vital properties exhausted, from a profuse, watery diarrhœa and occasional vomiting, of from one to three weeks' duration. When the mother is asked why she neglected the child so long, her prompt reply is, "O! the child is *teething.*" If we protest against the absurdity of the excuse, she often says "Doctor A. or B. told her the child was teething, and it would not do to stop the diarrhœa." And we are fully satisfied that more than *one hundred* children are sacrificed in this city alone, every summer, to the one single absurd error that because a child is *teething*, a diarrhœa need not be interfered with. Not only is the notion, that a strictly *normal* process like the growth of the teeth is the cause of disease, absurd, as represented by Dr. Jacobi; but, if it were true, instead of furnishing an excuse for neglecting the little sufferers, it should cause every one of common sense, whether mother, nurse, or physician, to watch them all the more carefully during the period of such growth.

KEROSOLENE—Letter from Dr. Dickinson.

TO THE EDITORS OF THE CHICAGO MEDICAL EXAMINER.

Gentlemen:—At your request, I herewith communicate all the facts in my possession respecting a new anæsthetic, called Kerosolene,—some observations in relation to which, together with a sample, I had the pleasure of presenting to the Chicago Medical Society. Circumstances have prevented me from making many experiments with this interesting agent. I, however, presented a specimen of it to Dr. Gustave Weber, of Cleveland, and hoped to have his experience to embody in this communication: this must now be reserved till a future time. I have, at this time, only desired to bring it to the

knowledge of the profession, by which its properties will be fully ascertained and appropriated accordingly.

WM. DICKINSON.

CHICAGO, ILL., July 20, 1861.

During the distillation of a peculiar kind of bituminous coal, in the manufacture of kerosene, other products are obtained, comprising a series most interesting in their physical properties, and not less so in their chemical reactions. These, almost endless in variety, have for many months engaged the attention of chemists, and especially of Dr. Hayes, State Assayer of Massachusetts.

In a casual conversation with Joshua Merrill, Esq., Superintendent of Downer's Kerosene Oil Works, Boston, Massachusetts, he brought to my notice this article—kerosolene—which, coming over early in the process, is condensed at a low temperature. This was, however, first discovered at similar works in New York city, formerly under the supervision of Mr. Atwood, chemist, and to it the name Kerosolene was given, not claiming for it chemical propriety, but, at the time, given for the lack of a better.

It has been ascertained to be a pure hydro-carbon, in which the carbon is slightly in excess, being highly inflammable, burning with a bright flame and with a little smoke. It is perfectly limpid and colorless as water, more volatile and of less specific gravity than ether; probably about 0.650, ether being 0.750. Almost tasteless, except for an instant when first applied to the tongue; it boils at about the temperature of the body; when favorably exposed, its evaporation is so rapid that water placed in a watch glass, in its midst, immediately freezes. Its odor bears a faint resemblance to kerosene and chloroform, but without the pungency of the former, and destitute of the irritating qualities of chloroform and ether upon the mucous membrane of the air passages. It forms a perfect solution with both, and also with water. It is a very powerful solvent, and for a long time has been used by the workmen for the removal of tar, grease, etc., from their clothes, no trace of its presence being left after evaporation.

The discovery of its anæsthetic qualities was the result of accident. Two men were directed to enter and cleanse a receiver, from which its contents, kerosene, had been drawn. Upon entering it from the top, they were at once immersed in an atmosphere of this vapor, its specific gravity being like that of carbonic acid, greater than that of air. Mr. Atwood says: "It is known that one of the men was subjected to this concentrated vapor for three-quarters of an hour, and the other for a shorter period. When removed, both being completely narcotized, and permitted to respire pure air, they speedily recovered consciousness and the exercise of all their faculties, without suffering at the time or subsequently, the least inconvenience from the involuntary anæsthesia, of which they had been the first subjects." A similar accident, under like circumstances, occurred under the observation of Mr. Merrill. While recovering after being exposed to the free access of air he exclaimed, "What heavenly music! what delicious music!" These all unite in their testimony that no headache, vertigo, nausea or other disagreeable sensation was experienced, but were all able in a few moments to resume their respective duties, as though they had not made, unwittingly, perhaps a very valuable contribution to science.

Flies subjected to the vapor are quickly narcotized, but generally soon recover. In some instances after apparent recovery, they seem to die from its effects. So far as its effects upon mice have been observed, it has produced death, either immediately or at variable times after apparent recovery. This effect must not be arrayed specially against the safety of kerosolene, for both ether and chloroform often produce death upon the lower animals; and from the effects of the latter, patients have seemed to die, even after complete and safe recovery from the anæsthesia produced by it.

Here now, without question, was a new anæsthetic,—its peculiar properties and powers, undeveloped and unknown, a few inspirations of its vapor are sufficient to convince one that its power exceeds that of ether, and besides that it is more agreeable and much less irritating to the respiratory organs, I thought, if brought to the knowledge of the profession, and

made the subject of judicious experiment, it might be found to possess more than mere kindred properties to ether and chloroform; perhaps to combine the power of the latter with the safety of the former. Accordingly, Mr. M. and self took a quantity of it to Dr. Cabot, one of the surgeons of Massachusetts General Hospital, and at the suggestion of Dr. Bowditch and assent of Mr. M., I introduced it to the Society for Medical Improvement, on the evening of 16th ult. Upon being presented by Dr. Bowditch, it elicited much interest, and was referred to the surgeons of the hospital and Dr. Bacon, professor of chemistry, for their investigation, experiment and report.

Dr. Bigelow, also one of the surgeons referred to, informed me, he was so firmly convinced of its innocency, that without further experiment, on the following day he caused it to be administered to himself by Dr. Hodges, with complete success in producing anæsthesia. The sensations he describes in the Boston *Medical and Surgical Journal** of the day following, as wholly agreeable, "leaving neither headache nor nausea, nor bad taste."

At the request of Dr. Andrews, of this city, I administered kerosolene to a lad about seven years, whom he was desirous of examining for suspected calculus. About one drachm of the liquid was applied to the surface of a folded handkerchief; a large admixture of pure air was thus allowed. Great caution was practiced in its administration, and the consequent phenomena carefully scrutinized. The inhalation was kindly borne, the vapor exciting neither apprehended suffocation nor even cough; but as consciousness declined, a general muscular rigor supervened, during which the respiration was suspended, and the face flushed, while the heart's action was increased both in frequency and force. A moment's removal of the handkerchief was followed by relaxation of the muscles. The inhalation was twice repeated with similar results. The pulse, at no instant, either flagged or intermitted; urine was voided involuntarily.

In the present state of our knowledge, ten days not yet having elapsed since its first administration to the human subject in

* *Vide* page 408—Examiner, for Dr. Bigelow's article.—E.

the person of Dr. Bigelow, we deemed it hazardous to persist in the use of kerosolene; it was therefore suspended, and the anæsthesia concluded by a mixture of ether and chloroform, of which the latter bore but a small proportion. The quantity of kerosolene employed, did not exceed one-half an ounce. Further experience may demonstrate that the rigor is but an innocent index of commencing anæsthesia, and has no value as a sign of danger; that it consequently can, with entire safety be disregarded; and also, that relaxation would follow upon a more complete state of anæsthesia, in the same manner as muscular action, or resistance during the administration of ether or chloroform, is an unequivocal indication to persist for the purpose of overcoming such action,—or it may be an indication to withhold its administration for a moment—the rigor having the same relation to the inhalation of kerosolene as suspended respiration to that of the other anæsthetics. Should it be ascertained that kerosolene, in its present state of manufacture, possesses positively noxious qualities, a process of purification may be adopted, which will entirely divest it of such properties.

Should experience award to it the power and safety alluded to above, its cheapness, in addition to other considerations, will strongly conspire to render it the favorite anæsthetic, since I have the assurance of Mr. Merrill that it can be furnished at one dollar a gallon.

THE NEW SPLINTS FOR HIP DISEASE.

TO THE EDITORS OF THE EXAMINER.

GENTLEMEN:—In the editorial department of the *Medical and Surgical Reporter*, Dr. O. C. Gibbs, of Frewsbury, N. Y., gives a notice of the three splints devised by Dr. Davis, Dr. Sayre, and myself, for the better treatment of morbus coxarius. In the course of his highly complimentary remarks, he inquires very naturally as follows:

"We do not see how he (Dr. Andrews) secures immobility

of the hip joint. Will the Professor tell us if he regards this as non-essential."

In reply to this I would state that immobility of the joint *after excision* is not desired, because the object sought is a ligamentous union of the cut extremity of the femur to the ilium. In cases not requiring excision, immobility would be desired, were it attainable without the confinement of the patient, but this is impossible. Neither Davis' nor Sayre's splints attain it, nor can any other which allows the patient to walk about freely. Slight motion of the joint when it is firmly extended is of but little consequence. When no splint is used, the patient at each step brings the whole weight of the body to press and grind on the inflamed head of the femur, hence the pain and the real mischief which result from attempts at walking in such instances, but if a good splint is applied, the head of the bone is kept drawn a little off from the acetabular surface, and the weight of the body does not rest upon it at all. Slight motion in such circumstances does little or no harm, as is evident from the fact that the patients no longer suffer from it. The great merit in the splints of Drs. Davis and Sayre is not in aiming at immobility, but in taking off effectually all pressure from the joint. Probably my splint allows a little more freedom to the limb than theirs, but I have yet seen no injury from it.

I think that my splint presents one advantage over the others, dependent upon the fact that it transmits the weight of the person directly to the ground. In Sayre's method the weight is transmitted from the lower end of the instrument, through adhesive straps, to the skin of the leg or thigh, and thence through the foot to the ground. Now, as the skin is elastic, it yields a little at each step, and relaxes the extension, and hence, in some cases it is difficult to tell whether a part of the weight is not still borne by the inflamed head of the femur. In my splint I place the patient in a standing posture, and extend the instrument until the heel, in stepping, no longer presses the bottom of the shoe. I fear that Dr. Sayre's recent improvement, in which he uses a shorter splint, and applies his adhesive straps to the integument of the thigh,

will be still more liable to the objection above mentioned from the elasticity and mobility of the skin.

Dr. Gibbs complains that my splint, being of Western origin, is overlooked at the East; but if there is any one to blame for that, it is probably myself. Having been occupied with my practice, I have neglected to take any measures to introduce it to the notice of the profession of that region. I have been called upon to see a great number of cases of hip disease, and merely devised this instrument for use among my own patients. Afterwards, I published an account of it in the EXAMINER of Chicago, but as I have taken no pains to bring it into notice further East, there are very few there who know of its existence.

Yours truly,

E. ANDREWS.

CHICAGO, July 24, 1861.

SURGEONS FOR THE ILLINOIS VOLUNTEERS.—The Board of Medical Examiners for this State, Prof. H. A. JOHNSON, M. D., President, resumed their sessions in this city on the 6th inst., at the rooms of the Indian Agency, in the Custom House building. Up to this date they have passed twenty-three *Surgeons*, as follows: Drs. W. Wagner, Geo. Coatsworth, H. Wardner, T. W. Winer, A. W. Heise, Jas. Bringhurst, C. Goodbrake, L. D. Kellogg, Wm. J. McKim, Henry Parker, Charles Storch, W. R. Burke, R. L. Metcalf, S. T. Trowbridge, W. M. Gray, R. G. Bogue, G. S. Lucas, L. Watson, S. C. Blake, S. M. Hamilton, S. W. Everett, Jas Roberts, and J W. Tuttle.

And twenty-five *Assistant Surgeons*, as follows: Drs. T. Babb, John Fetzer, F. K. Bailey, A. Blake, Carl Muntz. J. S. Hunt, S. C. Plummer, George H. Dewey, P. H. Bailhache, Sanford Bell, Chas. Davis, O. G. Hunt, D. Stahl, Jas. Hamilton, H. A. Buck, Edwin Gaylord, John B. Ensey, Jas. Farnum, E. Gulich, Benj. F. Stevenson, O. B. Ormsby, C. B. Tompkins, John M. Phipps, Wm. F. Cady, Theodore Bluthardt.

The Board still have some thirty-five or forty candidates on the list, and applications are made every day in excess of the examinations, so that their session bids fair to be indefinitely prolonged.

1861.] MEDICAL DEPARTMENT [1862.

OF

LIND UNIVERSITY, CHICAGO.

The third ANNUAL COURSE OF LECTURES in this Institution, will commence on the

SECOND MONDAY IN OCTOBER,

And will continue until the first Tuesday in March, following.

FEES:

Lecture Fees for the Winter Term,	$50 00
Graduation Fee,	20 00
Matriculation Fee,	5 00
Dissecting Ticket,	5 00
Hospital Ticket,	6 00

All Fees are payable in advance.

MEDICAL FACULTY:

DAVID RUTTER, M. D., Emeritus Professor of Obstetrics and Diseases of Women.
T. DEVILLE. M. D., Emeritus Professor of Anatomy.
J. H. HOLLISTER, M. D., Professor of Descriptive Anatomy.
H. A. JOHNSON, M. D., Professor of Physiology and Histology.
A. L. McARTHUR, M. D., Professor of Materia Medica and Therapeutics.
M. K. TAYLOR, M. D., Professor of General Pathology and Public Hygiene.
F. MAHLA, PH. D., Professor of Inorganic Chemistry.
E. ANDREWS, M. D., Professor of Principles and Practice of Surgery, and of Clinical Surgery.
RALPH N. ISHAM, M. D., Professor of Surgical Anatomy and Operations of Surgery.
W. H BYFORD, M. D., Professor of Obstetrics and Diseases of Women and Children.
N. S. DAVIS, M. D., Professor of Principles and Practice of Medicine and of Clinical Medicine.
F. MAHLA, PH. D., Professor of Organic Chemistry and Toxicology.
H. G. SPAFFORD, ESQ., Professor of Medical Jurisprudence.
HORACE WARDNER. M. D., Demonstrator of Anatomy.
N. W. WEBBER, Assistant to Chair of Practical Surgery.
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